Proposed Development Plan for the

St. Croix Waterway Recreation Area

Prepared by DPA Consulting Ltd. March 1983 Fredericton N.B.

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PROPOSED DEVELOPMENT PLAN

FOR THE

ST. CROIX WATERWAY

RECREATION AREA

FINAL REPORT

PREPARED FOR:

Management Committee
St. Croix Waterway
Recreation Area

PREPARED BY:

DPA Consulting Ltd.
Fredericton, N.B.
March 31, 1983

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April 5, 1983

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Dear Mr. Gray:

RE: Proposed Development Plan - St. Croix Waterway Recreation Area

I am pleased to submit our Final Report on this project.

On behalf of the project team, I would like to thank the Management Committee for their effective efforts in guiding and providing input to the study.

We have found the project to be challenging and enjoyable and appreciate being given the opportunity to carry it out.

Very truly yours,

Jacques Paynter

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1. INTRODUCTION

1 1 Background

The St. Croix - McAdam area of southwestern New Brunswick has been experiencing economic decline for the past several years. The continuing demise of McAdam as a railway servicing centre and interchange point and the closure of the Georgia-Pacific plywood mill coupled with secondary displacements in the service sector have underscored the necessity to diversify the economic base of the region.

The area is however, endowed with numerous lakes and streams in a panoramic setting and also includes one of the best canoeing rivers in eastern Canada. Sparsely populated the region supports a plethora of small and large game, the lakes are amply stocked with fish and the terrain presents abundant recreational opportunities for the adventurist, day-tripper or family group.

Accordingly, a specific area within the region has been set aside and designated by Order-in-Council under the Community Improvement Corporation Act as the St. Croix Waterway Recreation Area. DPA Consulting Limited was tasked with the preparation of a conceptual plan to provide a framework for rational long-term development geared towards improving recreational use of the area, but at a scale undetrimental to the resource base.

The course of the study has been guided by the Inter-departmental Management Committee on the St. Croix Waterway Recreation Area. At present, representation on the Committee includes members from the following departments and agencies:

- Community Improvement Corporation (chair)

  Department of Youth and Recreation

- Department of the Environment

  Department of Natural Resources

  Department of Historical and Cultural Resources

  Department of Tourism

This Committee has been established on a permanent basis and will be responsible for coordinating the management of the St. Croix Waterway Recreation Area; its mandate includes the following:

- to develop a recreation management plan and oversee its implementation;

- liaise with federal agencies;

- liaise with agencies of the State of Maine and the United States government where it is deemed appropriate;

- provide a formal channel for public input on the project;

- recommend and coordinate usage of the area on an ongoing basis; and

- liaise with private entrepreneurs and landowners.

The overall objective of the Development Plan is:

> "To facilitate management of the "St. Croix Waterway Recreation Area" in terms of accessibility and recreational use of the waterway and associated lands."

1.2 Goals

The goals of the project are:

1. To encourage tourism based on identified themes, with resultant economic spinoffs to area and province.

2. To protect and manage an increasingly valuable, diminishing natural recreational resource for current and future usage.

3 To protect and promote awareness of New Brunswick heritage (both Indian and early European settlement).

1.3 Sub-Objectives

Additionally, the study team adopted the following specific sub-objectives to assist its approach to data collection and identification and assessment of development opportunities:

- increase the economic benefits of the Tourism Industry to the area;

- capitalize on the natural strengths and uniqueness of the area;

- identify programs and projects which could realistically improve the attractiveness of the area to specific user types;

- identify the level of public sector support which may be required in order to stimulate and enhance development in the private sector;

- outline management guidelines which could be adopted to control the intensity of use;

- identify the most appropriate markets, the programs necessary to develop these markets and the most effective ways of communicating information to these market areas;

- identify the range and type of facilities required in order to meet expected demands;

1.4 The Study Area

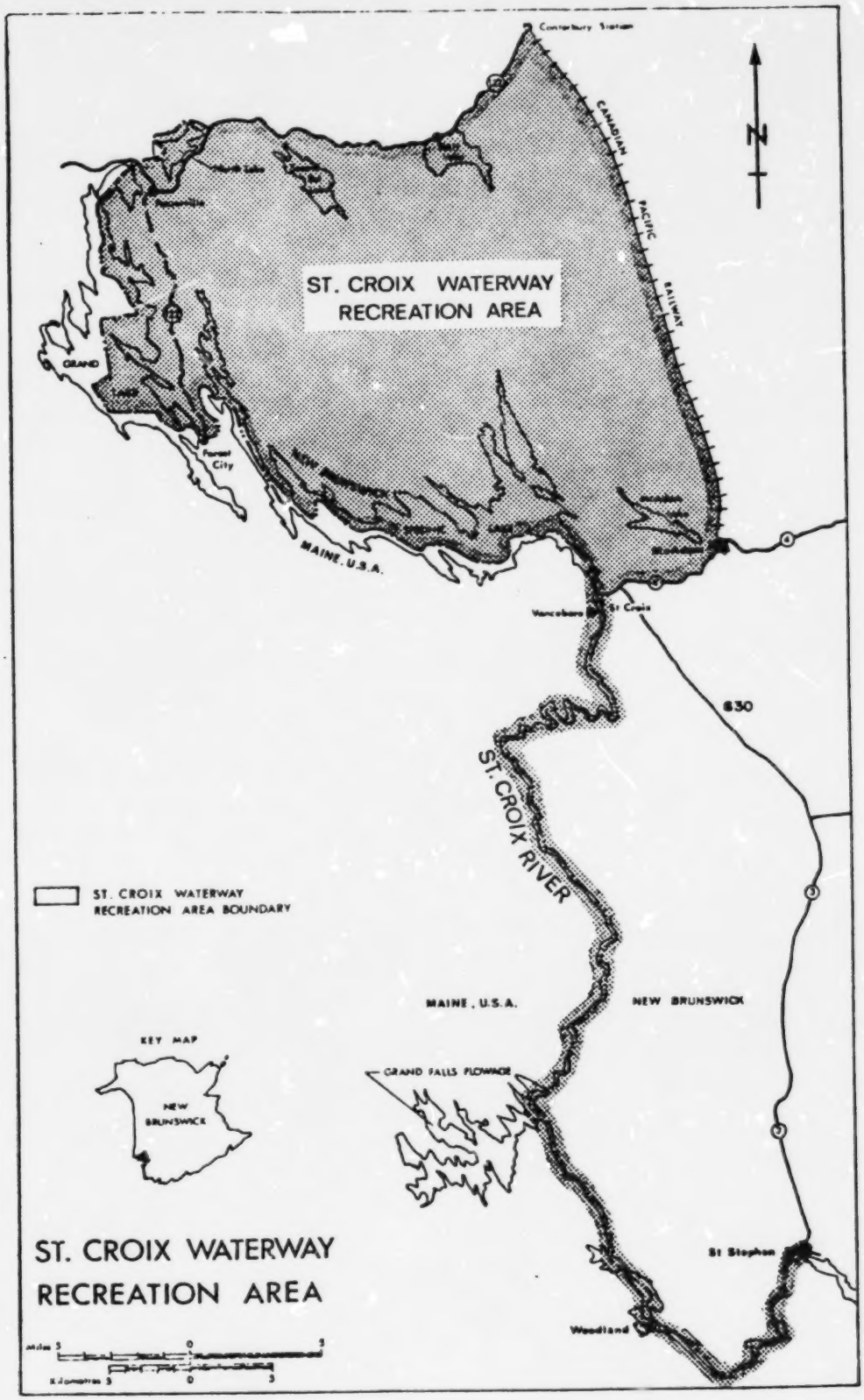
The extent of the study area is illustrated in Exhibit 1.1 and generally includes the Canadian portion of the Chiputneticook Lake System Watershed area and the St. Croix River. The area is bounded by the International Boundary between the State of Maine and the Province of New Brunswick to the west; Highway 122 to the north; the Canadian Pacific Railway to the east; and Highway 4 to the south.

More specifically, the SCWRA is officially described as follows: "The Waterway along the St. Croix River from St. Croix to St. Stephen, New Brunswick. The area of the waterway is bounded by the International Boundary in the River to 200 feet from the highwater mark along the River. The "Waterway Recreation Area" is officially

delineated by the point where this route intersects Bull Brook as it enters North Lake; and then northwesterly along the highwater mark on the shore of North Lake across Hay Brook on North Lake and thereafter southward along the International Boundary through Grand Lake and Spednic Lake to Vanceboro; and thence easterly along Route 4 to the Village of McAdam and then northward along the Canadian Pacific Railways line to Canterbury" (Province of New Brunswick, Order in Council 16328).

The 1200 square kilometer land base, largely owned by Georgia Pacific Corporation supports a regional population of approximately 8000 persons, mostly concentrated in the Village of McAdam and the Town of St. Stephen. The terrain and soil characteristics of the area are poorly suited for agricultural purposes and the major economic activity is forest harvesting, primarily to support local and U.S. mills.

EXHIBIT 1 - 1: STUDY AREA



1.5 Approach and Methodology

The study has proceeded under two significant contraints: a fairly short study time period available (8 weeks) and the fact that the physical analysis had to be conducted during the winter season when the region, covered with ice and snow, was largely inaccessible. Accordingly, the study team relied heavily upon topographical map and aerial photo reconnaissance as well as discussions with persons knowledgeable of the area. There are major drawbacks to this approach as maps and photos are occasionally out of date and the information gleaned from personal interviews may be subjective, susceptible to bias, and somewhat unreliable in both time and space.

In order to overcome these problems the study team has endeavored to consult as many sources of information as possible and cross-check data for authenticity. In most cases this has proven to be fruitful and the information presented is believed to be the best available given the previously mentioned constraints. Nevertheless, it is highly recommended that appropriate physical surveys be undertaken at the proper time of year in order to verify specific project requirements prior to implementation.

1.6 Purpose of the Study

The purpose of the study is to prepare a Development Plan which provides a framework for rational long term development of the St. Croix Waterway Recreation Area. Within the context of a framework, the study presents concepts, guidelines and recommendations for further

action on the part of various sectors, both public and private. This report is not intended to be a feasibility study evaluating the need for a Recreation Area nor is it expected that the suggested program initiatives will be highly developed and complete in every detail.

Rather, the Proposed Development Plan should be considered to be the nucleus for detailed planning and the promotion of increased recreational use of the region which will stimulate activities and capital investment geared towards revitalizing its economic diversity and enhancing employment opportunities for its residents.

1.7 Organization of the Report

The remainder of this report is organized as follows:

Chapter 2 provides an overview of the physical, socio-economic and environmental characteristics of the region, including a discussion of its historical significance.

Chapter 3 presents the results of a market analysis undertaken to determine user types and preferences, market areas and current promotional techniques utilized in similar settings in other parts of North America.

Chapter 4 discusses the difficulties associated with the determination of a theoretical carrying capacity for the region and presents management options.

Chapter 5 outlines the conceptual basis for the proposed physical layout of new facilities and areas designated for particular types of recreation.

Chapter 6 provides a brief qualitative assessment of potential socio-economic and environmental impacts.

Chapter 7 presents a development strategy in the form of programs and projects recommended to be undertaken.

2. RESOURCE INVENTORY

2.1 Overview of the Region's Characteristics

The St. Croix River Basin is located in the eastern corner of Maine, United States, and the southwestern portion of New Brunswick, Canada. Its watershed is bounded on the north by the Saint John River Basin, on the west by the Penobscot River basin, and on the south and east by the Maine and New Brunswick coastal streams. It has a maximum length in the northwest-southeast direction of about 80 kilometers. Of the total basin area of 4,235 km^2,2,616 km^2 are in Maine, and 1619 km^2 are in New Brunswick.

Most of the St. Croix River Basin is a dissected lowland with topography considerably affected by glaciation and marine erosion. The last glacier altered the already considerably eroded land resulting in an extensive lake system and numerous flat and rolling plains. The numerous lakes and swamps, occupying nearly a fifth of the total drainage area, have a major effect on flows of the St. Croix River and most of its tributaries. The hills generally rise less than one hundred metres above the surrounding land.

The St. Croix River, throughout its entire length, and its headwater tributary, Monument Brook, forms part of the International Boundary between Maine and New Brunswick. Principal features are an extensive lake system and gently rolling forested plains.

The St. Croix Waterway Recreation Area (SCWRA) is defined geographically by two contiguous but distinct areas: the Chiputneticook Lake System watershed and the St. Croix River. The former is a large land mass that

is a diverse blend of rolling, wooded hills, vast marshes, expansive lakes and spectacular granite glaciated deposits. The most unique feature of the area is the many lakes and streams which are to a great extent interconnected.

The fifteen major lakes (see Appendix I) together consitute a water surface area of approximately 17,600 hectares, an area which slightly surpasses that of Grand Lake (Queens County), the largest lake in the Province. However, while the available water surface area lends itself to the support of a variety of water-borne activities, it is the attribute of interconnection between water bodies which provides the potential for a diverse pattern of canoe-tripping routes within a relatively concentrated area - an aspect which is not to be found very readily in other parts of Canada or the Northeastern United States.

The St. Croix River unfolds its wooded shore just below the dam at the St. Croix - Vanceboro border crossing; the ample headwaters of Spednic Lake make canoeing possible into late summer. Above Loon Bay, a series of rapids and rips (Appendix II) are of sufficient degree of difficulty to test the canoe/kayak handling capabilities of intermediate paddlers (Appendix IV). The entire length of the river can be canoed except for Little Falls which can only be run by experienced paddlers when the water is high. Most trips terminate at Grand Falls for below the dam there is very little current and the journey to St. Stephen/Milltown involves approximately 30 kilometres of deadwater paddling Past the Milltown Power Station are two series of rapids which are Class III - V (see Appendix III) and should only be run by intermediate paddlers when a rescue boat is present.

2.2 Physical and Socio-economic Context

History

The St. Croix River basin is a relatively remote woodland and is sparsely settled by about 15,600 people (Statistics Canada 1976) in the Canadian portion. The economy of the region is closely geared to the Georgia-Pacific Corporation which owns most of the land. With the exception of St. Stephen, the majority of the local labour force is employed in either the harvesting of timber or processing of forest products.

The history of the basin is closely linked to the development of hydroelectric power on the St. Croix River, which goes back to the early 1800's, when several small dams were built in the lower reaches of the river largely for the benefit of log driving and the operation of small local industries, such as mills and tanneries.

In 1899, the St. Croix Water Power Company was incorporated with authorities which included the rights to develop, sell, or use electric power. Since that time, the basin's reservoir system has been operated primarily for generation of hydroelectric power.

Recreational use of the lakes began during the 1930's. Summer cottages have been built at favorable locations, notably Skiff, Spednic and Grand Lakes, by residents of both countries.

There are three hydroelectric developments in operation in the basin. Grand Falls (Kellyland Power Station) and Woodland in Maine are owned and operated by the

Georgia-Pacific Corporation. These stations supply power to their paper mill at Woodland and serve public loads in Woodland and vicinity. The Georgia-Pacific thermal and hydropower plants generate about 95% of the electricity the Corporation consumes in its operations. The third hydroelectric plant, located at Milltown, New Brunswick, is owned by The New Brunswick Electric Power Commission.

Communities

The population in the SCWRA is approximately 8,000 persons, largely concentrated in the Town of St. Stephen and the Village of McAdam. Exhibit 2-1 summarizes the communities, located in the region, by status, population, economic activity and land use regulations.

Transportation

The SCWRA can be approached from within the Province of New Brunswick by routes 122 to the north and routes 4 and 630 (which also allows north-south travel within the region) to the south. Highway 122 is connected to the Trans Canada Highway (TCH) at Meductic, while Highway 4 joins Highway 3 (at Thomaston Corner) which joins the TCH at Longs Creek, approximately 35 km north of Fredericton. It is expected that most Canadian visitors would approach the SCWRA via the TCH and routes 3 and 4.

From the American side, the principle direction of approach is likely to be along Maine Route 6, which makes a direct connection to New Brunswick Route 4.

EXHIBIT 2-1: MUNICIPAL CHARACTERISTICS

COMMUNITY	STATUS[1]	POPULATION[2] (1981)	ECONOMIC ACTIVITY	ZONING[1]
McAdam	Village	1857	transportation forestry, service	yes
Fosterville	North Lake LSD	284	administration, forestry	no
Forest City	North Lake LSD			no
Canterbury	Village	474	foresty, service	no
St. Croix	McAdam LSD	113	administration	no
St. Stephen	Town	5120	service, light manufacturing, education	yes

Source: 1. Department of Municipal Affairs
2. Statistics Canada

This link would be used by international tourist traffic coming from Interstate Route 95. Customs services are provided on a twenty-four hour basis at the St. Croix-Vanceboro border crossing.

Although some of these routes will require upgrading to accommodate future traffic levels with increased promotion and use of the area, the SCWRA is well connected to the major population centres of Northeastern North America. The entire population of the Province of New Brunswick is within less than six hours driving time, as are other major urban centres such as Halifax, Nova Scotia; Bangor and Portland, Maine; etc.. Most of the densely populated region of the American northeastern seaboard is within one day's driving time.

Air access to the SCWRA is an important consideration in the encouragement of use of the area by foreign visitors. In this regard, the SCWRA is again well situated in close proximity to the following airports which offer connecting services to major international airports (e.g. Halifax, Bangor):

- Fredericton Airport;
- Saint John Airport;
- Houlton Airport;
- St. Stephen Municipal Airport;
- Princeton Airfield (Maine).

2.3 The Lake System

An inventory of the major characteristics of the fifteen lakes in the St. Croix Waterway Recreation Area is contained in Appendix I. For the most part, the lakes exhibit many features which contribute to a potential for dangerous situations and serious boating accidents to users who are inexperienced and/or ill-informed prior to setting out on the waters. The lakes are shallow and are situated parallel to the prevailing wind, thus allowing considerable fetch, a combination which results in higher wave forms than normally associated with water bodies of this size. The lake bottoms, particualrly in Grand, Spednic and Second Eel Lakes, are studded with massive dark gray granite boulders situated almost immediately below the surface and in storm conditions cannot be seen. Thus, someone who is travelling at high speed and not familiar with boating routes on these lakes is in danger of striking the rocks. Additionally, the shorelines are rocky and inhospitable; suitable campsites may be several miles apart, affording little chance of finding shelter when most needed. In spite of these intimidating factors, a well equipped boater forearmed with the knowledge of safe channels and campsite locations is assured of an unforgettable voyage in scenic splendour.

In consideration of their physical characteristics, the lakes have been assigned a potential for supporting various uses as outlined in Appendix I. While there is a possibility for conflict between user types, the extent of the land area and nature of the terrain as well as the physical features of the lake system are such that a significant number of user contacts of the

type which traditionally lead to conflicts (e.g. waterskiing-canoeing; fishing - power boating) are unlikely.

Based upon discussions with knowledgeable users of the area, potential campsites have been identified. In the absence of place names, these areas are difficult to describe and are therefore marked on Map I.

Issues

Discussions with local outfitters have revealed a universal complaint: the prolonged use by boat/canoe campers of sites traditionally considered to be reserved for a shore lunch for guides' and outfitters' guests. In some extreme cases, campers have been known to stay as long as three weeks in the same spot. Since suitable areas for a shore lunch are few and far between it has been suggested that use of these sites be restricted to one overnight stay only, with users vacating the area at a reasonable time the following morning, thus allowing day-use of the site by outfitters and guides with their parties.

It is recognized that actual enforcement of such an arrangement would be difficult. However, through public awareness campaigns geared towards promoting camper courtesy; information brochures explaining uses allocated for particular locations; and, perhaps, on-site signage, it is expected that this problem could be resolved. Additionally, some sites may be suitably developed to accommodate both types of users (e.g. Todds Island).

From a developmental point of view, the physical charactertistics of the lakes imply the necessity for undertaking several actions:

- survey and mapping of safe passages for various types of craft

- a mechanism for disseminating information regarding possible dangers associated with water craft use, at all possible launch areas

- establishment of a highly trained (but probably volunteer) rescue team and centre for coordination of ground search and rescue operations.

Concern has also been expressed with regard to the damage to spawning areas by the lowering of water levels. Many residents perceive that present fish stocks are below past levels, primarily due to fluctuating water levels and not fishing pressure.

Several studies, directed towards a better understanding of desired lake levels and downstream effects of discharges, and an attitude survey of local residents' and camp owners' concerns, were conducted during the period 1972-1976. An operating plan which closely met the needs of all concerned was developed for the reservoir system. (Peters and Bergin. 1982).

2.4 The St. Croix River

The St. Croix River forms part of the international boundary between Canada and the United States. It originates in the Chiputneticook Lake System and flows in a northerly direction through Mud Lake, then

southeasterly through Spednic Lake for about 32 km to the outlet at St. Croix. It then meanders about 87 km to tidewater at St. Stephen. The tidewater estuary extends east and south from St. Stephen about 23 km to its mouth at Passamaquoddy Bay.

The principal tributaries of the St. Croix River in downstream order are Monument Brook, the West Branch and Tomak Stream. Smaller tributaries, all on the Canadian side, are Palfrey Brook, Canoose River, Mohannes Stream, Dennis Stream, Gallop Stream, and the Waweig River.

The St. Croix River offers a variety of river-running experiences ranging from still water to fast current to exciting rapids. The river is a safe run for most paddlers with a minimum of white water experience as for the most part the rapids are sharp but not dangerous and with few obstacles. The interconnecting current between rapids is fast but nevertheless affords a more relaxed paddle. The scenic shoreline is wild and wooded - a prettier river would be difficult to find. Most trippers elect to canoe the portion of the river between St. Croix and the Grand Falls Dam - a two day voyage with the over-night stop usually occuring at Beaconsfield Camp.

It has been estimated, by a Vanceboro resident who keeps an unofficial count, that some 6000 people (mostly belonging to clubs of U.S. origin) used the river in 1982. (source: conversation with Vance Smith, St. Stephen Canoe Club, 1983).

Assuming a six month, primarily weekend season, this level of usage translates into approximately 100

persons per day - an intensity of use which already strains the capacity of the physical facilities available. Promotion of increased use of the river may require the establishment of strict management controls.

At present there are several campsites (both official and unofficial) located on the river at the following locations: (see Map I)

- Elbow Rips
- English Cove
- Tunnel Rips
- Halls Brook (The Cape)
- Little Falls
- Duck Point
- Scotts Brook
- Rocky Point (Tourism New Brunswick)
- Rocky Rips
- Beaconsfield (just below Haycock Rips)
- Loon Bay (Loon Bay Lodge)
- Canoose Ledges
- Canoose Stream
- Grand Falls

With the exception of Beaconsfield and Loon Bay, the capacity of all of these sites is limited and in the order of 3 - 4 tents.(Smith 1983). There are almost no toilet facilities and very restricted capacity for solid waste disposal. To date most canoeists have been conscientious about garbage removal and local canoe groups which use the area frequently clean up on an as required basis.

All of the above mentioned campsites have severely constrained expansion potential. However, the nature of the shoreline in the vicinity of Canoose Stream would permit limited expansion of that site.

Increased usage of the St. Croix River will require improved campsite facilities: tent platforms to prevent soil compaction and vegetation trampling, toilet facilities and, animal-proof waste receptacles. Additionally, improved public boat launch facilities and parking areas will be required at St. Croix, Beaconsfield/Loon Bay and Grand Falls.

2.5 Wildlife

The Canada Land Inventory (Fredericton 21 G) classifies the land capability, in the SCWRA, for ungulates, in the range between Class 2 and Class 4,indicating very slight to moderate limitations to the production of ungulates with isolated areas of Class 5 (moderately severe limitations). Soil limitations include poor soil moisture, lack of soil nutrients and thin soil depth. (For a detailed explanation of the CLI classification system see Appendix V). The dominant species are deer and moose. The southwestern border of New Brunswick

provides some of the best deer habitat in the province. Within the study area the best lands for moose are along the St. Croix River system. The study area has a healthy population of white tailed deer and black bear. York and Charlotte counties were among the top four counties in the province in terms of total deer killed in 1980. The black bear is a favourite game animal with the non-resident hunters during the Spring season. There is a high moose population relative to the rest of the province, however the hunting season for this species is short and restricted to residents of New Brunswick. Fur bearing animals of the area include: bobcat, fox, mink, racoon, skunk, weasel, coyote, squirrel, beaver and muskrat.

Discussions with guides and outfitters who work in the study area suggest that deer and black bear are the most popular game among sportsmen. The majority of local outfitters' clientele has traditionally been non-resident, particularly from the United States.

The uplands game population is rich and diverse and includes Ruffed Grouse and Woodcock. The Canada Land Inventory (Fredericton 21 G) classifies the land capability for waterfowl in the region as being between Class 6 and Class 7 which generally indicate severe limitations to the production of waterfowl. The sole exceptions to this classification are Modsley and Foster Lakes which are Class 5/4, indicating moderate to moderately severe limitations to the production of waterfowl (see Appendix V). The significant limiting factors for the entire region include: excessively shallow water depth, adverse topography and insufficient soil/water nutrients. Nothwithstanding these limitations, waterfowl production in the area is expected to improve with the work currently being

undertaken by Ducks Unlimited.

Ducks Unlimited

Ducks Unlimited is a privately funded agency which builds, restores or preserves environments in which watefowl can live and reproduce. Once a potential site has been located and a project approved, construction begins on the necessary dams, dykes, channels or ditches. Ducks Unlimited currently has five existing projects in the vicinity of the study area as illustrated in Map I; the largest is a 570 hectare development at Three Brooks, just north of the Canoose Flowage. The agency has five new sites scheduled for construction in 1983 including a 700 hectare project at the Canoose Flowage. There are eight potential projects scheduled for future development, as well as a number of areas slated to be assessed for their waterfowl habitat potential.

The Ducks Unlimited habitats usually attract many species of wildlife besides waterfowl and offer a variety of interesting activities for people. They are therefore of interest to outdoor enthusiasts, photographers and bird watchers; hunters and fishermen (many of whom make financial contributions to Ducks Unlimited) as well as canoeists who can enjoy the calm waters of these sites.

The Bald Eagle

The general area surrounding and including the SCWRA is the primary bald eagle habitat of New Brunswick, with some of the nesting sites having been occupied for 25 years. All but one of the provinces' 25 nesting sites are found in the southwest between the estuary of the

Saint John River and the border with the State of Maine. Some of these nesting sites are located in the SCWRA.

Bald Eagles are very sensitive to human activity which can cause it to desert it's nest. The most critical period is in the early spring when the eagles start breeding. By June the eggs have hatched and the chances of nest desertion are reduced. Human activity in the immediate vicinity of these nests should be discouraged through educational programs.

Fish

Map II shows the fish species found in each of the major lakes and waterways of the SCWRA. The predominant fish species of the area are; smallmouth bass, land-locked salmon, lake trout, white perch, chain pickerel and brook trout.

Southwestern New Brunswick is considered by many to be one of the best smallmouth bass fishing areas in North America. Although resident anglers have traditionally preferred fishing trout and salmon, interest in the smallmouth bass has increased in recent years. Non-residents, particularly from the United States, appear to be more interested in fishing for smallmouth bass.

Land-locked salmon are more abundant in the southwest than any other part of the province. This fish is popular with both the resident and non-resident anglers. Discussions with local outfitters indicate that land-locked salmon stocks are perceived to be on the decline. The New Brunswick Department of Natural Resources has been stocking Skiff lake with

approximately 1500 salmon per year while the State of Maine is stocking East Grand Lake with approximately 23,000 salmon per year.

The brook trout is probably the most popular fish among resident anglers. It is important to note that this fish is not a good co-habitant with smallmouth bass.

Interviews with Department of Natural Resources officials indicate that consideration of the following opportunities and constraints is important in the development of the SCWRA recreational fishery:

1. McAdam Lake and First Lake have good potential as a spawning and nursery area for smallmouth bass;

2. Bolton Lake is a fair spawning area and an excellent nursery area for smallmouth bass;

3. Warm water fish and cold water fish are not good co-habitants due to the difference in their reproductive rates. The predominant species of cold and warm water fish found in the SCWRA are listed below:

Warm Water Fish	Cold Water Fish
Smallmouth Bass	Brook Trout
White Perch	Landlocked Salmon
Chain Pickerel	Lake Trout
	Smelt

4. The stocking of land-locked salmon in Skiff Lake currently costs approximately $1500/year. An artificial spawning area for land-locked salmon could be constructed at the mouth of Sucker Brook at a cost of approximately $3000 to $5000;

5. There is an active dip net fishery for smelts on both Grand and North Lakes. Both of these lakes also have a good winter fishery;

6. The New Brunswick Department of Natural Resources is currently considering stocking Second Eel Lake with land-locked salmon;

7. Both Palfrey and Spednic Lakes currently have an excellent smallmouth bass fishery;

8. A joint effort by the Canadian and United States governments is currently being undertaken to reintroduce anadromous fish to the St. Croix River. Pollution abatement and provision of better fish passageways could restore to the St. Croix the Atlantic Salmon, Gaspereau and American Shad.

Issues

Discussions with local guides and outfitters have also raised the following issues.

1. There is currently very little angling information on the study area. A periodic survey of anglers to determine such things as how long they fished, success rates and species caught would be useful in identifying trends and changes in stocks;

2. An inventory of streams and rivers would be useful in identifying obstructions to fish migration such

as inactive beaverdams and blow downs. At the same time deadwaters, falls and pools could be mapped for the use of anglers and canoeists;

3. There is a perception on the part of local residents and guides/outfitters that fluctuating water levels are affecting spawning areas in Grand and Spednic Lakes.

2.6 Historical Sites

In the immediate past, the St. Croix Waterway has been an active trading and transportation route for natives and early settlers, and is thus rich in historical significance. More important, however, is the fact that analysis of private collections of archeological material, gleaned from the area, suggests a 3000 - 5000 year span of occupation. Consequently, the St. Croix Waterway Recreation Area may be one of the most significant heritage resources in the province. Active research is required to preserve and protect evidence of prehistoric life and, additionally, provide the information needed for interpretation of the heritage sites.

Preliminary research in the area was undertaken by the Archaeology Branch of the Department of Historical and Cultural Resources during the summer of 1982 with financial assistance from the Community Improvement Corporation. The research involved a two person inventory project which focused on locating and recording sites, primarily on Grand Lake, North Lake and, to a lesser extent, on Spednic Lake. Approximately half of the lakes area of the SCWRA was surveyed, leaving major portions of Spednic Lake and the St. Croix River unexamined. Additionally a small display depicting local finds and regional archaeology was set up in the McAdam Tourist Bureau.

During the archeological survey of the SCWRA it became evident that the construction of dams to raise water levels which was necessary to support the activities of the lumber industry and sport fishery as well as the use of water craft had also inadvertantly destroyed much of the areas prehistory. The level of the lakes is artificially controlled and is permitted to vary by as much as four metres according to the International Joint Commission Orders of Approval, over the course of the year.(In reality however, records show that water levels actually fluctuate by less than two metres.) Consequently, many archeological sites have been completely drowned and others reduced to mere beach finds. The importance of those few sites which do remain cannot be overstated as they represent the only legacy of prehistoric life on these lakes

As promotion and use of the area intensifies, it will become increasingly important to identify the areas to be protected, excavated and interpreted. A great deal more survey work remains to be accomplished within the SCWRA.

In the area surveyed, only two sites were found with intact portions remaining. There could be more. Both sites lie adjacent to canoe routes that have only recently been promoted and will undoubtedly be used more intensively as a result of the establishment of the SCWRA.

One site is located only a stream's width away from Spednic Lake Provincial Park while the second site cannot be avoided by any canoeist ascending or descending the only connecting waters between Grand and Spednic Lakes.

3. MARKET OVERVIEW

3.1 Introduction

Several factors have been considered in the development of the market overview; these include:

- the trend towards family vacations at specific destination areas which provide a wide range of facilities and activities catering to all members of a family

- the trend towards adventure or special-interest vacations by both amateur and expert (eg. rock hounding, rail fanning, bird watching etc.)

- the very significant trend towards increased interest in the "outdoors" and in particular the observation of wildlife in its natural setting

- the trend towards increased interest in the use of water craft, particularly canoes, and in river running.

3.2 Market Trends

This section outlines the potential market areas and apparent trends in Fishing, Hunting and Outdoor Recreational Activities (canoeing, hiking, cross country skiing etc.) Additionally, the current promotional practices of existing outfitters are discussed. The information presented here was compiled through a review of existing background data supplemented by 12 interviews with participants in the industry (i.e. outfitters, sports writers etc.).

Fishing

Of the primary fish species in the study area, the most popular among resident fishermen appear to be brook trout, lake trout and perhaps to a lesser extent, land locked salmon. Bass fishing is growing in popularity in New Brunswick although it still appears to be of secondary interest to local fishermen.

There is every indication that a significant market exists for bass fishing in the Southern United States and increasingly in the Northeast as well. It was mentioned by a tour wholesaler that the Chicago area also has a large number of avid bass fishermen. Ontario, Quebec and the State of Maine are also areas with considerable interest in bass fishing.

Bass fishermen are usually well educated and have above average incomes. Generally, they seek a wilderness to semi-wilderness setting. Above average bass fishing, as might be expected, is of prime importance. Indications are that non-resident sportsmen would pay upwards of $100/day including lodging and meals for good bass fishing, provided the accommodations and meals are of high quality.

Many Maine outfitters promote their respective areas for land locked salmon and trout fishing. The market for this type of fishing tends to be primarily in the Northeastern United States. These outfitters mentioned that their principal competition comes from Labrador and Northern Quebec.

Given the apparent considerable market for bass and a demonstrated market for other fish species (i.e. land

locked salmon, trout) all of which are abundant in the study area, it would appear that the sport fishery in the St. Croix area has good development potential.

Hunting

Of the game available in the study area, deer and bear hunting appear to be the most popular among sportsmen. Present markets for both Maine and New Brunswick outfitters include the States of Massachusetts, New Jersey and Pennsylvania and to a lesser extent, New York. Considerable interest in bear hunting is apparent in the southern states of Virginia, the Carolinas and Georgia.

New Brunswick has two bear hunting seasons; April 18 - June 25 and October 1 - November 13. The deer season in the study area runs from October 25 - November 20. The State of Maine has recently closed their spring bear hunting season which could benefit the early New Brunswick season.

Currently, bookings for hunting parties are usually for a minimum of one week. Rates charged are in the area of $500 - $600/week/person which includes: hunting license, transportation while in the area, meals and lodging. This rate may include limited guide service, although this is usually an added cost of approximately $50/day. A Class I Guide can accompany three non-resident hunters enabling them to share this cost. A Class II Guide can accompany only 1 non-resident hunter at a time. In either case, it is required that non-resident hunters be accompanied by a licensed guide.

Outdoor Recreation Activities

A number of market interviews were conducted with outfitters in the Northeastern U.S. and Ontario. These outfitters cater to outdoor enthusiasts interested in recreational activities other than hunting and fishing. The activities offered included:

Winter	Summer
Cross Country Skiing	Canoeing
Ski Camping Tours	Backpacking
Skating	Nature Study
Snowshoeing	Rafting
	Kayaking

The summer activities appear to be the most popular, particularly canoeing and hiking (backpacking). Of the winter activities it appears that cross country skiing and ski touring are increasing in popularity.

Outfitters

Outfitters tend to cater to the regional market in their winter program. In the case of the St. Croix area, the regional market might include Maine, New Brunswick and to a lesser extent Nova Scotia and Prince Edward Island.

The market for summer activities covers a much wider geographical area. Generally, the United States outfitters interviewed catered to the New England market, the states mentioned most often included: New York, Massachusetts, Connecticut, Pennsylvania and New Jersey. In Central Canada the outfitters catered to the Oshawa - Toronto - Hamilton area for the most part, however, they too obtained a significant share of their business from the New England area.

It was mentioned repeatedly that one should cater to the middle to upper income clientele. This segment of the market are willing to pay premium rates to participate in outdoor activities provided that the service, accommodations and food are of high quality.

Rates charged by the outfitters vary considerably depending on the package offered. The typical package including lodge accommodations would cost in the order of $75 - $125 per day, depending of course on the quality and range of services offered. A five day guided skiing, canoeing or backpacking trip would cost approximately $50/day/person including food, equipment and heated, comfortable shelters.

Outfitters indicated that vacations based upon educational experiences were becoming increasingly more popular. People want to learn how to camp out in the wilderness and are also interested in studying nature. It was also suggested that there was a trend among the wealthy to get out and get some exercise in a wilderness setting, but at the same time they demand first rate accommodations, food and service.

3.3 Current Promotional Practices

Existing outfitters who have been in business for sometime indicated that "repeats" and "referrals" make up 60% - 95% of their business. Indications are that it takes 4 to 7 years to build repeat clientele up to the 60% level. While all outfitters use some form of promotion, those who are relatively new to the industry devote more of their resources to advertising.

EXHIBIT 3-1 : SUMMARY OF MARKET INFORMATION BY ACTIVITY

Activity	Potential Market Area(s)	Market Season	Industry Rates	Clientele Characteristics
Fishing	Northeast U.S. Southern U.S. Quebec/Ontario	May August	$100/day incl. lodging and meals	-above average income -male groups -family groups
Hunting				
-bear	Southeast U.S. Northeast U.S.	May June October	$500-$600/ week	-groups of 3 or 4 males
-deer	Southeast U.S. Northeast U.S.	November	$500-$600/ week	-groups of 3 or 4 males
Outdoor Recreational Activities				
-winter	Regional (N.B., N.S.,P.E.I.,Me.)	December-March	$75-$125/ day incl. lodging and meals	-groups -families -couples
-summer	Regional (N.B., N.S.,P.E.I.,Me.)	June-September	$75-$125/ day incl. lodging and meals	-groups -families -couples

All of the industry participants interviewed advertised in magazines. Fishing and hunting operations mentioned specifically; Sports Afield, Field and Stream and Bass Master Magazine. Outfitters specializing in other outdoor recreational activities mentioned the following publications; Outside, Backpacker and Outdoor Canada. One respondent indicated that he generated $8 - $10 worth of business for every dollar spent on magazine advertising.

Most of those interviewed attended trade shows and exhibitions to promote their operations. These events were considered to be worthwhile as they gave one the opportunity to establish personal contact with potential clientele.

Most respondents had developed promotional material in the form of pamphlets and posters to mail to prospective clients who responded to their advertising or had heard of the outfitter indirectly.

The larger lodge type operations also marketed their business through tour wholesalers. This form of promotion appears to be particularly successful in obtaining large group bookings through corporations, clubs etc..

3.4 Market Potential

3.5 Marketing Strategy

Market Areas

In general, the primary market area for the Province of New Brunswick is Quebec, whose residents are drawn by the beaches and bilingual atmosphere in the northern and eastern coastal regions of New Brunswick.

However, the SCWRA offers a specific range of products - "wilderness" camping, canoeing, fishing, etc., - which are available in abundance in the province of Quebec. It is not likely that Quebecers will be drawn to the SCWRA because of its recreational opportunities.

Therefore, the primary market areas for the SCWRA are: the provinces of New Brunswick, Nova Scotia and Prince Edward Island; and the State of Maine. The dominance of this market area is largely due to the fact that recreationists are increasingly seeking opportunities closer to home due to rising transportation costs.

The secondary market areas are the provinces of Newfoundland and Labrador, Quebec and Ontario and the rest of the northeastern United States where several million people live within a day's driving time (3-4 hours) of the St. Croix Waterway Recreation Area. Once in the province, tourists from these areas realize that facilities and attractions in New Brunswick are less crowded than elsewhere - a factor which encourages repeat visitation. The relatively unspoiled scenery, clear water and potential for solitude which the SCWRA offers will appeal strongly to residents of the crowded urban areas in the northeastern U.S., Quebec and Ontario.

The tertiary market area is Europe where crowded living conditions and the marked absence of large nature reserves make the prospect of a holiday in a pristine semi-wilderness very appealing. A few Europeans already visit the area on a regular basis, mostly to hunt bears. Obviously, access to the area for this market will be quite costly and therefore the most common

visitors are likely to be residents of Germany and Scandanavia. Tapping this market will require targeted marketing techniques and a good understanding of its expectations as well as good access routes from nearby international airports.

Promotion

The St. Croix Waterway Recreational Area has vast potential and offers the visitor a specific recreational experience. It must be promoted in a manner which reflects its true attributes and is qualified by these physical realities:

- forestry operations may be affecting wildlife habitat and perhaps reproductive capacities of certain species

- the level of services at many outfitters' lodges and camps is below adequate standards - especially for foreign visitors

- many of the lakes are ill-suited to power boating

- the St. Croix River, is considered to be an intermediate class white water experience ideally suited to families and groups

- the effect of increased sport fishing pressure on existing stock levels is unknown

- existing infrastructure is inadequate to support a wide range of winter activities

The most successful vehicles for promotion of the SCWRA are likely to be as follows:

- display booth at outdoor and sportsmen's exhibitions (e.g. Toronto Sportmen's Show, Salon Camping - Montreal, etc.)

- articles by recognized outdoor writers in the trade magazines

- area profiles broadcasted on "outdoor" television shows (e.g. Bud Leavitt Wildlife, Red Fisher Sports Show, etc.).

The range of experience offered to the visitor is an important consideration in marketing and promotion. Given the characteristics of the resource base and current usage the attraction of the lake region could be based upon the potential for solitude, and emphasis placed on low density use; on the other hand, the white water thrills of the St. Croix River may be enjoyed in more crowded conditions, thus permitting higher density use.

Thus, it is indeed fortunate that the characteristics of the SCWRA can be marketed to a wide spectrum of potential users.

4. CARRYING CAPACITY

4.1 Introduction

The concept of carrying capacity refers to the ability of a resource base to sustain a certain level of continual human activity without suffering permanent damage. In the recreation sector, it has been recognized that there is a need for good quality recreational opportunities for an ever-increasing number of people. However, for any given area, there is obviously a level of use beyond which the characteristics of the resource or the quality of the experience is adversely affected. The dilemma is to match user numbers with the ability of the natural attraction to withstand the impact of sustained use such that the integrity of the resource base is maintained regardless of user satisfaction. This begs the simple question as to how many people a particular resource base can absorb without suffering harmful effects. Unfortunately, the answer is anything but simple.

There are basically three types of carrying capacity determinants: sociological, which attempts to measure public attitude towards the quality of the experience; ecological, which attempts to quantify specific environmental factors such as soil compaction, erosion, root exposure, water quality, vegetation trampling, etc; and physical, which measures the total physical space available within the area to accommodate human activity (e.g. tent pads, motel rooms, etc.). Evaluation of these determinants is further complicated by a combination of factors which include: the management objectives adopted for the area, the

bio-physical nature and resiliance of the resource base and the preferences and tolerances of the users.

4.2 Context

Determination of a specific number appropriate for the St. Croix Waterway Recreation Area is difficult.

Assessment of carrying capacity from an ecological viewpoint is considered to be difficult since the necessary baseline data is lacking. Rather, an attempt has been made to approach the issue of carrying capacity by discussing the situation in general terms with a view towards developing appropriate management guidelines whose adoption may or may not be deemed necessary by the Management Committee.

Social carrying capacity refers to the level of use at which the number of human contacts influence the nature of the outdoor experience. While there is a diversity of opinion as to what a good quality recreational experience is, the problem is readily resolved, within the context of the St. Croix Waterway Recreation Area, if the management objective is to provide for as many satisfied visitors as possible within budgetary constraints. Accordingly, it is to be expected that the type of recreational experience to be provided by the St. Croix Waterway Recreation Area is to be one where the user should expect a moderate level of human contact within a semi-wilderness setting. It is therefore important to recognize that the St. Croix Waterway Recreation Area should not be promoted as a "wilderness" area where visitors can expect low intensity use and few encounters with other humans.

The determinants used to assess social carrying capacity are as follows (Stankey 1973):

- amount of use subjected upon the resource base
- group size
- method of travel
- behavior patterns of users

It is useful to briefly discuss each of these aspects with a view towards evaluating their relevance to the SCWRA.

Firstly, it would appear, that contrary to conventional thinking, there is little evidence to support the belief that increased use results in a declining recreational experience (Wagar 1964) or environmental quality (Magill 1970).

Secondly, from a review of the literature and in the project team's opinion, it would appear that the method of travel is the major source of user conflicts (Lucas 1964). The greatest perceived reduction in a recreational experience probably stems from an encounter between a non-motorized and a motorized user (e.g. canoeist - motorboats, hiker - trail biker, cross country skier - snowmobile). Usually the encounter is considered to be unsatisfactory by the former, rather than the latter.

Thirdly, there appears to be some tolerance of individual human contact in the "wilderness", but meeting large parties causes problems (Wildland Research Center 1962).

Finally, the reaction to behavior that violates accepted social norms (littering, rowdiness, etc.) is overwhelming negative (Stankey 1973).

As an upper limit, it is possible to assess the amount of physical space available to humans (e.g. campsites, parking lots, boat ramps, guides and accommodation). This rather straightforward approach will provide a maximum potential level of utilization. (In some respects, the SCWRA may be close to this level at present). It is suspected, however, that contrary to experience in other wilderness areas, the physical capacity of the SCWRA is at present and will be for a considerable time in the future, below the social carrying capacity of the area. In this regard, the concept of facilities carrying capacity may become an effective management technique.

It may be possible to develop density criteria which could serve as a preliminary basis for capacity analysis in the SCWRA. For example, the following guidelines could be suggested for various recreational activities:

- boat fishing:	10 hectares/boat
- lake canoeing:	2 km per group
- hunting:	maximum of one contact per group per day
- social canoeing:	reasonably unlimited contact with persons engaged in same activity

- cross country skiing: reasonably unlimited contract with persons engaged in same activity

- snowmobiling: reasonably unlimited contact with persons engaged in same activity

- river canoeing: maximum of one contact per group per day

- canoe camping: potential for private campsite each evening

However, the problems associated with quantifying use levels on the basis of strict application of such criteria are significant. For example, determining boating capacity solely on the basis of available water area would be too simplistic. Rather, use levels may be severely constrained by other factors, such as: parking space at launch ramps, width and length of navigation channels and shore line length and characteristics. Additionally, capacity is a subjective matter, and the relationships between space and activity must be flexible and subject to change. Nevertheless, assigning some capacity threshold is essential if the recreation resources are to be well managed. (Jaakson 1982).

It would appear reasonable to assume that, given the great amount of water area available and the level of existing use,the SCWRA could absorb considerably higher water-oriented recreation pressures than present levels. Potential for crowded conditions are possible, however, and these include boat fishing on the smaller lakes, canoeing on the St. Croix River and

canoe-camping throughout the area. It is recommended that these specific areas be monitored closely as the popularity of the SCWRA increases.

Given the region's characteristics, it would appear that the availability of overnight campsite space, rather than water area, would be the limiting factor. Accordingly a rough estimate of capacity in the SCWRA has been made on the basis of present users' assessment of physical space available in existing and potential campsites as follows:

AREA	CAMPSITE SPACE (No. of tent sites)	
	Existing	Potential
North Lake	60	62
Grand Lake	--	20
Spednic Lake	36	50
Other Lakes	20	52
Interior of Lake Region	--	18
St. Croix River	8	40
Total	124	242

Based upon a maximum party size of 2-3 persons per tent, the total overnite camping space available would presently accommodate approximately 300 persons; and, if all potential sites were to be developed, maximum

capacity would be in the order of 600 persons.

If motel and outfitter lodge space (excluding St. Stephen) is included, present capacity rises to about 375 persons. No major expansion of existing outfitters' facilities is proposed as part of this plan, but assuming the capacity of new facilities to be about 30 guests, the total future potential overnight capacity would be approximately 630 persons.

4.3 Conclusion

In summary, it is difficult to quantify the ecological and sociological carrying capacity of the SCWRA. However, a rough estimate would indicate that the potential capacity of physical facilities, when developed to the extent recommended in the Development Concept, would be less than 650 persons per day. Assuming these visitors were homogeneously distributed throughout the area, it would appear that harmful ecological effects would be minimal. Nevertheless, concentration of all of these users in a small area would obviously create environmental and sociological conflicts.

As the SCWRA increases in popularity it will become necessary to carefully monitor sensitive areas and institute appropriate remedial action. In addition, facilities and their linkages must be designed with a view towards promoting dispersion of visitors by providing a variety of interesting activity opportunities in many different areas.

4.4 Monitoring and Management Guidelines

In the light of the preceding discussion, it is unlikely that strict control techniques will be required, at least in the short term, to limit use of the St. Croix Waterway Recreation Area. However, should positive action become necessary, a range of options concerning user and resource management is available. Exhibit 4-1 provides an overview of monitoring and management techniques available for use, and briefly discusses their advantages and disadvantages.

EXHIBIT 4 - 1: MONITORING AND MANAGEMENT OPTIONS

MONITORING TECHNIQUES	DESCRIPTION	ADMINISTRATION	DISADVANTAGES	ADVANTAGES
Ground/Aerial Observation	data collection to determine intensity of use	local agency	costly	time-series data on use
Surveys	questionnaires: user satisfaction, needs, etc.	provincial agency	difficult to implement	time-series data on use
Remote sensing	satellite & high altitudeinstrumentation: resource base degradation	federal agency	image quality affected by weather; costly	may prove useful in long term
MANAGEMENT TECHNIQUES				
Trip permit	written authorization for area usage	coordination centre,	costly, difficult to enforce	strict control of use
Floater Registration	written authorization for watercraft usage	commercial operators	costly, difficult to enforce	can be controlled at access points
User Fee	payment required to use area	local agency	costly	defrays administration & maintenance costs

Zoning	use separate in space	local agency	costly to develop	avoids conflict
Temporal Seperation	use separated in time (seasons)	local agency	difficult to enforce	avoids conflict
Party Size Restriction	limitations placed upon total number of persons traveling as a group	commercial operators coordination centre	reduces total visitation	enhances user satisfaction
Litter Controls	ban non-combustable materials, impose fines, continuous clean-up program	commercial operators all agencies, users	difficult to police and enforce	enhances user satisfaction
Rapid Dispersion Techniques	design trail systems to provide good choice and change use patterns	planning agency	limited potential in SCWRA	reduces potential user contacts
Closure	prohibit use of damaged areas	management committee	reduces facilities availability	allows regeneration of ecosystem

5. Development Concept

5.1 Approach

The proposed development concept for the area is based upon two parameters: the physical scope of potential recreational activities; and the image scope which can be marketed to potential users.

The physical nature of activities can be categorized as being either linear (involving movement along a specific route) or static (confined to a rather concentrated area). More specifically, linear activities have the following characteristics:

- ranges over a wide area with the termination point of the journey usually different from that of the start point;
- involves movement over the ground or water and various different methods of travel could be used during the course of a single journey (e.g. canoe-portage);
- is generally self-sufficient once commenced (e.g. no re- supply of provisions is necessary);
- is usually self-planned (no guide or outfitter required);
- may or may not involve equipment rentals.

On the other hand, a static activity which is confined to a relatively small area has the following characteristics:

- usually starts and finishes at the same geographic location;

- involves only one method of travel;

- is usually not self-sufficient (return to a base camp for evening accommodation and meals is required);

- planning is usually done by a third party (tour agency, guide, outfitter, etc.);

- equipment rental is usually required.

Image scope refers to the range of experiences which can be marketed to a broad spectrum of possible users, which include specialists, adventurists and the general public. Within the context of the total area of the St. Croix Waterway Recreation Area, one might consider the Lake Region to have significant potential as a semi-wilderness area in which seclusion and privacy are the primary attraction. Additionally, this region presents opportunities for different experiences. On the other hand, the St. Croix River, already crowded to some extent, should be marketed as a chance to experience relatively safe and manageable rapids.

Map I presents the Development Concept in graphic form and indicates the sub-areas of the St. Croix Waterway Recreation Area which have been assessed as having the greatest potential for both linear and static area water and/or land based activities.

The activity base concept generates requirements for and can only succeed with, the establishment of major development nodes at both the north and south extremities of the Lake Region; coupled with travel corridors facilitating various methods of travel (foot, boat, and/or vehicle).

Within the context of the Lake Region it is considered that the primary role of vehicles are to provide support services for the movement of parties and equipment from one recreational area to another. Vehicle use is not to be promoted as an activity in itself. Georgia-Pacific, which maintains most of the woods roads in the area, has expressed concern that extensive vehicle use will conflict with their operations, especially the movement of heavy logging trucks.

There is also a requirement for a centrally located information dissemination facility where visitors could be informed of activities, programs and travel routes, etc.. Such a facility should be located in the village of McAdam because of its strategic position on Highway 4. Other satellite information centres are required at secondary entrance points (Forest City, St. Croix and Canterbury).

The development concept is further strengthened by the St. Croix Waterway Recreation Area's location with respect to two popular nearby destination areas: the Mactaquac Park/Kings Landing Area immediately to the west and the Fundy Isles (St. Stephen/St. Andrews) Resort Area immediately to the south of the area. Visitors to these areas could be enticed to visit the SCWRA by means of information and directional signage; scenic transportation linkages and appropriate promotion in the context of alternative recreation and tourism activities.

5.2 Framework

As illustrated in Map I the Development Concept proposes the establishment of two major development nodes linked by travel corridors which are both water and land oriented.

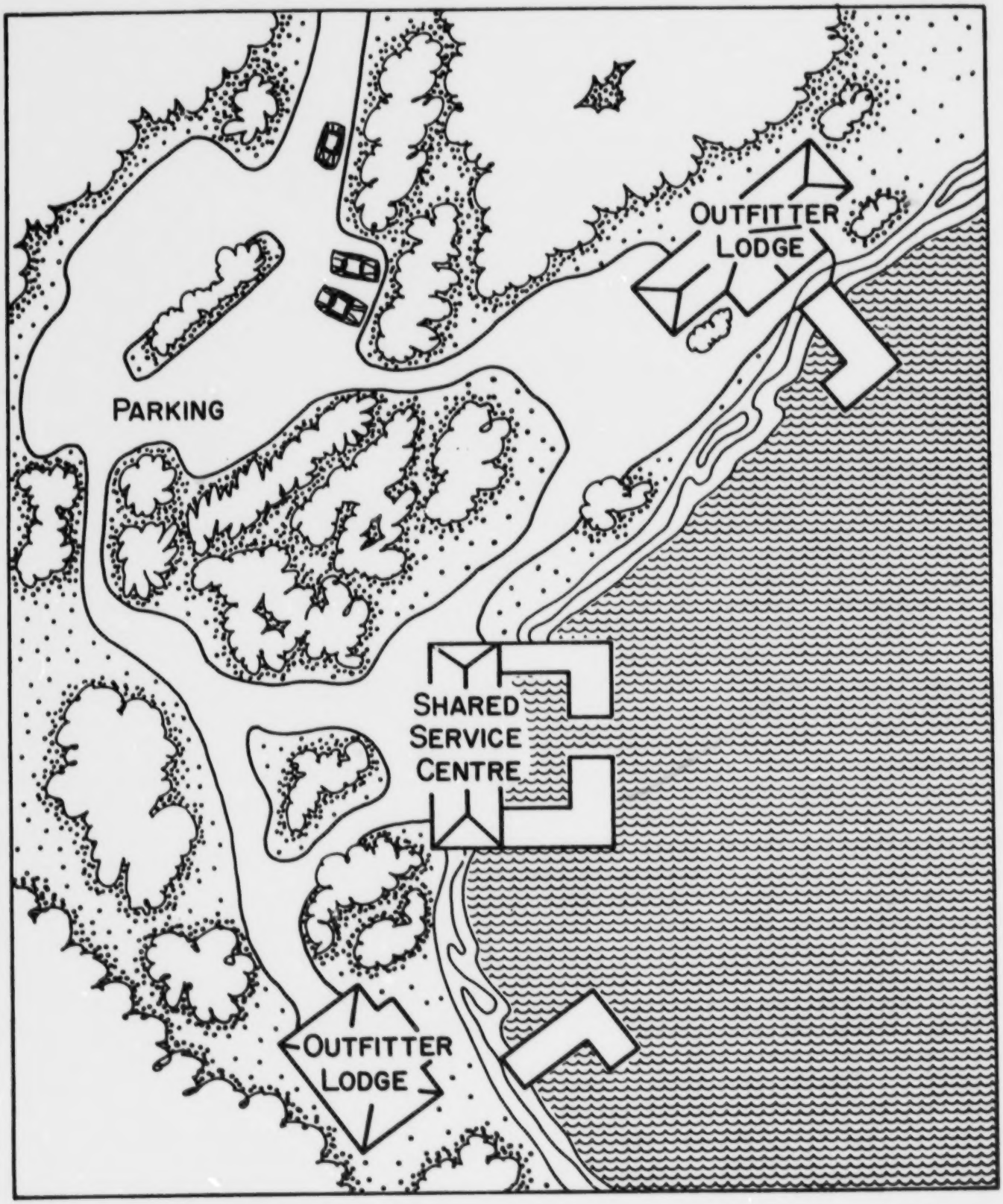
A major development node is proposed in the immediate vicinity of Spednic Lake Provincial Park. At this site a total infrastructure package should be made available with the range of facilities to include the following: campsites and toilets; picnic area; interpretive display for the Diggity Creek Archaeological Site; and, an Information Map Board with complete graphic detail regarding possible activities, programs and the location of trail routes, canoe routes and a description of physical facilities located elswhere in the SCWRA. Given the proximity of this location to the major transportation access routes and the Village of McAdam the general vicinity of this node would be an ideal location for an equipment rental outfit, grocery store and a family oriented lodge providing facilities and a broad spectrum of programs geared towards meeting the needs of different age groups.

A significant issue which has come to light during the preparation of the development plan has been the potential difficulty for the private sector to acquire land for a base of operations within the SCWRA. In fact, it is considered to be almost impossible for an entrepreneur to purchase the land necessary to establish new facilities at the shore line of any of the major lakes, thus severely limiting the entry of new outfitters/lodge operators into the region.

To overcome this problem, Georgia-Pacific Corporation has indicated its willingness to negotiate making land available to the SCWRA for management purposes. Thus, it has been suggested by the Management Committee that suitable lands could be made available and leased to interested parties. An arrangement of this nature would be ideally suited to support the development of a multi-faceted complex, catering to diverse user types, within a relatively confined area. Thus, high level capital investment requirements (typically access roads, parking lots, boats, docks, some structures, etc.) could be shared with a consequent reduction in total start-up and operation costs. The Outfitter Mall Complex (a suggested layout is illustrated in Exhibit 5-1) could be located near Spednic Lake Park (although not necessarily within the provincial park boundaries) to benefit from the activity generated in this immediate area.

Similar to Spednic Lake Park, but at a slightly smaller scale, it is proposed that a limited infrastructure package be made available at North Lake Provincial Park. This site is the primary put-in point for all water-borne travellers whose ultimate destination is the lower reaches of the water-shed (Spednic Lake, Palfrey Lake) and/or the St. Croix River. Facilities available at this site should include campsites and toilets, picnic area, and, an Information Map Board. An equipment rental outlet which is a satellite of the one located in the St. Croix-McAdam area could also be developed nearby.

EXHIBIT 5-1: OUTFITTER MALL COMPLEX



The foregoing major development nodes have been proposed in their respective locations because of their positions at the extreme north and south of the lake system watershed area. The Spednic Lake Park is also an ideal overnight spot for groups contemplating a journey down the St. Croix River. To a large extent, most of the requisite infrastructure is already in place at North Lake Park. This site is on a well travelled route in the immediate proximity of a U.S. border crossing and no additional road construction is necessary.

However, the success of the Spednic Lake location is highly dependent upon appropriate and attractive signage strategically positioned on Highway 4 (probably immediately upon exiting McAdam when travelling in a westerly direction and immediately upon exiting St. Croix when travelling in an easterly direction), in addition to appropriate directional signage at the junction of the access road to the Park.

Approximately 20,000 non-resident travellers per annum currently use the Vanceboro/St. Croix border crossing (source: Non-Resident Auto Exit Survey, 1980) and it is highly probable that, if the access journey is not of too great a distance, a good percentage of these travellers could be encouraged to, at least, visit Spednic Lake Park initially on a casual or day-use basis. Hopefully they would become aware of the SCWRA's recreational possibilities and return at a later date for a longer stay.

Small scale facilities upgrading in the longer term is proposed for secondary centres located at Skiff Lake, Forest City, St. Croix and Grand Falls. Initially, capital investment should be concentrated on improving public access to the water at these areas (eg. launch ramps, picnic sites, parking lots).

It is proposed that the Village of McAdam's role be that of a total service facility for the entire SCWRA. This role would include formal designation as the main service centre, which would involve visitor reception and information regarding activities and area use at a Tourist Information Centre; restaurant; fuel and auto servicing facilities; interpretive display of the archeological and heritage significance of the entire region; a tackle and/or camping equipment section as part of an existing store; and accommodations.

The proposed travel corridors are also indicated on Map I. General locations of campsites as well as the general alignment of various trails for land-based activities are shown. It is expected that appropriately skilled manpower will be hired and the detailed survey and construction work done during the summer seasons.

As shown on the Map, the primary linear water routes include the journey from North Lake to the Headwaters of the St. Croix River; the journey from Second Eel Lake through the interior of the region into Palfrey Lake; and various other typically day long journeys along the various brooks and tributaries located in the water-shed. It is to be noted that discussions with people knowledgable about the region indicate that a significant amount of brush clearance is required in some of the smaller streams to allow passage of a canoe. (It should also be noted that, in many cases, a canoe constructed from ABS plastic is highly preferrable to models incorporating more fragile materials (e.g. cedar-canvas). Furthermore, it has yet to be determined whether the watershed can sustain sufficient flow levels in the smaller creeks and brooks to permit year-round use. Thus, some trips may be seasonal in nature.

The land based routes are proposed in an effort to promote hiking, back-packing and snowshoeing or cross-country skiing between North Lake Park and Spednic Lake Park. It is recognized that probably very few individuals will undertake an intrepid journey of this nature in consideration of the distances involved. However, development of the trail system is still deemed to be worthwhile since the northern and southern extremities of this system (especially if return loops were included) would undoubtedly receive a good deal of usage.

Primary static activity areas are proposed in the vicinity of Skiff Lake; the Mount Henry/Howland Hill area and the Green Mountain Hill/Sam Foster Hill area. The topography of these areas lends itself to the development of hiking, skiing and snowmobiling trails.

The St. Croix River is considered to be a corridor in itself, primarily dedicated to the two-day journey by canoe and kayak; with the major put-in point at St. Croix; the overnight stay usually occuring in the vicinity of Loon Bay Lodge; and the pull-out point at Grand Falls. With increased usage, it is to be expected that considerable upgrading of existing and the development of new campsites will be required, especially in the Loon Bay Lodge area. Improved facilities at Grand Falls will also be needed to accommodate boat retrieval from the river.

It has been mentioned that vandalism of automobiles is a severe problem at Grand Falls and unless this situation is remedied it poses a serious constraint to the use of the river. This dilemma can readily be

overcome by providing a shuttle service, between St. Croix and Grand Falls, which could be a viable economic opportunity to a local entrepreneaur.

5.3 International Perspective

The St. Croix River, throughout its entire length; and Grand and Spednic Lakes form part of the boundary between the Province of New Brunswick and the State of Maine. Residents of both countries currently enjoy freedom of movement on these water bodies in spite of the fact that the international boundary (located at approximately the center of the lakes and the river) may be crossed several times a day.

Increased visitation may create problems for Customs and Immigration officials regarding the control of access to and movement within the SCWRA. Resolution of this issue would require the establishment of appropriate communication links between the Management Committee and the proper United States and Canadian authorities.

More importantly, however, the overall success of the SCWRA could be significantly enhanced through close cooperation with the appropriate agencies and departments in the U.S. regarding the implementation, cooperative development and promotion of the region.

5.4 Public Input to Management

The Interdepartmental Management Committee is responsible for coordinating the management of provincial initiatives within the SCWRA on a permanent basis.

Nevertheless, decision and policy making regarding use of the area should, to some extent, reflect the wishes and desires of the people who live and work in the region.

In order to ensure ongoing public consultation in the management process, it is recommended that a permanent advisory group, reporting to the Management Committee, be established to represent the interests of local residents and other relevant user groups (e.g. Canoe N.B., N.B. Outfitters Association, Georgia-Pacific Corporation, etc.). Representation on this group should also include one volunteer or appointee from each Local Service District or Municipality in the region.

The function of the advisory group should be to respond, on an as required basis, to requests for commentary on issues to be dealt with by the Management Committee.

6. IMPACTS

The purpose of this section is to present an overview of the substance and range of potential impacts possible within the context of the SCWRA, recognizing the intent of establishing a low-key development. It is based primarily upon a review of the literature regarding experiences elsewhere.

6.1 Socio-economic Impacts

Traditionally, the promotion of a new "wilderness" recreation area creates social impacts which are primarily related to the effects of restrictions or changes in the use of the land; and increased visitation to the area in comparison with the normal pattern of living enjoyed by the local residents.

In this regard, the major negative impact is usually related to more human contact in the "woods" and to habitat degradation resulting from increased use. Consequently, the local residents do not enjoy the same quality of experience in the "wilderness" as they once did. Local residents may resent the establishment of recreation areas and can be less than receptive to the influx of non-local visitors.

In addition, local residents, often think that increased promotion of an area's resource harvesting attributes (hunting, fishing, trapping) will create adverse pressures on stock levels in the resource base, leading to, at least, the lowering of the levels of "consumptive success" enjoyed prior to the establishment of the recreation area.

One aspect to assessing the socio-economic impacts resulting from increased recreational use of the area is its present importance to local residents in terms of providing recreational experiences and consumptive and/or non-consumptive resource use.

From a resource harvesting viewpoint, given the high level of unemployment in the area, it is more than likely that existing practices are perceived to be an important source of supplementary income and/or non-tax revenue to bolster the household budget. This may be particularly true for deer and moose hunting which has traditionally supplemented the larder in New Brunswick families.

It is also possible that there will be a perceived increased competition for the fish resource. However, as it is expected that the SCWRA will be promoted more from the viewpoint of the smallmouth bass fishery than that of the land-locked salmon and trout fishery (the latter two species being the traditional catch of resident anglers); serious complaints regarding resource pressures are not likely to arise.

However, as the level of use approaches the "social/physical carrying capacity" vocal objections from local residents may become common: ie. the first time a local angler can't park his car because the parking area is full (particularly with U.S. licence plates).

To a large degree there will probably not be a substantial amount of opposition to increased activity within the SCWRA provided the local population is fully informed as to the scale of development proposed and is given the opportunity to provide input to the

management of the resource base. Furthermore, since the proposed development plan does not involve any restrictions on use of the area by local-residents there is no reason to expect adverse reaction in the form of bitterness regarding lost use.

As promotion and use of the SCWRA intensifies, it will become increasingly important to identify the archaeological resources to be protected, excavated and interpreted. At present there are two known site locations which lie adjacent to promoted canoe routes. Since both sites lie in strategic locations, an increase in water and portage traffic in the vicinity may jeopordize their integrity as these sites can be expected to be recognized and, in time, vandalized by users. According to officials of the Department of Historical and Cultural Resources, protection or preservation of archaeological sites can only be made compatible with the existence of the SCWRA through archaeological excavation and interpretation.

Many of the potential social impacts are alleviated because Georgia Pacific Corporation is the major landowner and discussions with representatives of the Corporation indicate that there will be no changes to their current policy of open access for the public to the area as long as the traditional wilderness rules are respected; litter and pollution does not increase and, public use does not interfere with timber harvesting and transport operations. They intend to continue to interact with the public in a spirit of hospitable cooperation.

Increased tourism-related economic benefits, while to be welcomed, may also cause problems. In many respects the proposed new development will result in

non-unionized, seasonal and lower wage jobs than traditionally enjoyed by the local residents.

The main local economic benefits to be derived from the Proposed Development Plan are primarily increased total regional income and employment opportunities resulting from the establishment of new facilities and the promotion of new activities. However, it is difficult to quantify the extent of these benefits to the local population. Undoubtedly the increased importance of North Lake Provincial Park; the further development of Spednic Lake Provincial Park; and the establishment of new, as well as the upgrading of existing, facilities will create new jobs. There are also significant benefits to be obtained by the private sector through capitalizing upon the proposed programs and opportunities (Chapter 7). However, local individuals may require substantial encouragement, assistance and guidance in order to realize the maximum benefits from any new developments.

The other major source of economic benefits is visitor expenditures. (It should be noted that visitor expenditures do not necessarily have to occur directly within the region) There are significant difficulties involved with attempting to estimate the amount of economic benefits resulting from visitor expenditures. It should be mentioned at this point, that, in the recreation field, there is a significant trend towards the self-sufficient and self-planned type of activity (for which the SCWRA is ideally suited),which generates very little in the way of local expenditure because the visitor usually arrives fully prepared and fully equipped. For example, in the case of Kejimkujik Park, Nova Scotia, (a park promoted for its canoe routes)

visitor expenditures amounted only to about 10% of the total local income generated by the park's presence in the area. (Harvey et al 1973).

In summary, it cannot be expected that the SCWRA will play a major role in the growth and economic development of the region. However, it is highly likely that expenditures related to use of the area will supplement and complement existing economic activities. To a large extent, the total economic benefit that the recreation area is capable of generating will be highly dependant upon the capabilities of the local residents to capitalize upon private sector opportunities. Thus, the public sector expenditures should be geared towards providing the nucleus for growth and development of an entrepreneurial spirit in the region.

It should be noted that, the generally low level of entrepreneurial experience and incomes in the region will mean that few local residents will have the funds or knowledge to open small businesses, etc. to capitalize on the income opportunities which could become available. Development may well lag because of this situation.

6.2 Environmental Impacts

The purpose of this section is to discuss some of the possible ramifications of the proposed development to the integrity of the resource base. Much of the analysis which follows is fully cognizant of the fact that the proposed development is one which has purposely been maintained at a "soft" impact and low scale with limited capital investment.

Environmental impact deals with the range of changes potentially affecting the physical/chemical, ecological and aesthetic nature of the resource base through the activities of man. Generally, it has been suggested that human activites bring about three categories of change (Hendee et al. 1978) which could pertain to the SCWRA:

- materials addition, especially foreign substances, to the area;

- materials removal, especially energy or nutrient-rich substances, from the area; and

- physical alteration of landforms, vegetation, etc..

Within the context of the SCWRA, the major variables that are subject to change are soils, flora and fauna, and surface water quality. Exhibit 6-1 provides an overview of possible sources, as well as the physical manifestation, of change. The information contained in the Exhibit has been obtained from several sources and reflects the range of experience in other wilderness recreation areas.

Any attempt to assess the possible impact of the proposed development upon the environment must be qualified by the findings of several researchers in this subject matter. For example, Aitchison et al. (1977) found that there was no significant co-relation between the number of campers and the total amount of impact. Rather, this study concluded that the impact was more dependent upon the threshold of tolerance of the natural resource base to the users and of their camping practices. Some researchers have also found

that, following an initial change in the soil and vegetation, very little additional impact results with increased use (Frissel and Duncan, 1965).

Based upon a review of the literature of the research conducted to date it would appear that the cause and the effects of changes in the natural environment resulting from recreational use are not fully understood. Therefore the study team is hampered in its efforts to draw meaningful conclusions regarding potential impacts for the SCWRA.

For the most part, campsite development has been located in areas which already receive a certain amount of use and no significant increase in expected. There will obviously be increased usage at points of concentration, particularly Spednic Lake Provincial Park and North Lake Park as well as probable increassed traffic along Highway 630 between Highways 4 and 122. Additionally, the nature of the activities proposed are not expected to create sources of pollution which will reduce present water quality levels.

6.3 Required Action

Impacts resulting from increased use in line with the proposed low scale development are, with the exception of the archeological sites, unlikely to be serious in the short to medium term.

The major problem will probably be control of litter and other human-generated wastes at campsites and the roadside.

The mitigative measures which may become necessary to control the potential adverse effects of use in the

SCWRA are outlined in Exhibit 4-1.

As well, it should be recognized that the establishment of the SCWRA presents significant research opportunities geared towards enhancing the body of recreational-use-oriented social, economic and environmental knowledge. Consideration should be given to the establishment of baseline data and on-going monitoring of the effects of activities.

EXHIBIT 6-1: POTENTIAL ENVIRONMENTAL IMPACTS

IMPACT	SOURCE	MANIFESTATION
Soils		
chemical composition	campfire, ash, metals, glass plastics, paper waste food, feces, urine, other foreign substances	changes in organic matter, altered nitrate/ phosphate levels, decreased pH, unpleasant odours and unsanitary conditions
physical composition	mechanical compaction, pit digging, trenching	increased erosion, decreased or increased infiltration, increased evaporation of moisture content, greater root firmness or root suffocation in extreme situations
Flora		
tree mutilation	carving, chopping, etc.	root exposure bark removal decline in tree vigor cleaning of tree cover leading to erosion
vegetation	mechanical trampling	reduced growth surface and rates altered leaf litter and humus depth species disappearance or loss of all vegetation in restricted areas
Fauna		
chronic disturbance	all human activities expecially those which are motorized	emmigration of large mammals, eagles, ospreys
habitat alteration	fire, infrastructure construction, clearing for facilities	animal movement altered reproductive rates introduction of non-native species

EXHIBIT 6-1: POTENTIAL ENVIRONMENTAL IMPACTS CON'T

Problem wildlife	improper food storage, garbage handling or feeding of wildlife by humans	chronic bear-human conflicts, especially in campgrounds
Water Quality	improper sanitary wastes disposal, burning of excess food and containers, liquid cooking wastes, sedimentation and run-off	increased coliform bacteria (unpotable water) altered nutrient levels garbage around shorelines
Aesthetic	physical facilities placement and maintenance harvesting operations roads: design and location	alteration of skyline and waterline

7. DEVELOPMENT STRATEGY

7.1 Opportunities

The proposed Development Concept presents opportunities for many programs and activities which, although not large on an individual basis, when considered collectively could lead to an attractive, successful and, in the operational phase, well-functioning recreation area. Accordingly, the intent of this section is to identify the scope of public investment required to initiate the development of recommended facilities and infrastructures, at the major nodes and secondary centres, which will hopefully stimulate private sector initiatives.

The projects have been developed largely on the basis of site visits, discussions with local community leaders and residents, and the suggestions brought forward by the members of the St. Croix Waterway Recreation Area Management Committee. For the most part, the rationale for the following projects is believed to be sound, however, in some cases a detailed feasibility analysis regarding markets, operation and budgetary considerations may be considered necessary.

Each project is briefly discussed on the following pages. The Projects are summarized in Exhibit 7-1.

The projects have been divided into three categories: Infrastructure Projects, which represent capital investment initiatives in the establishment of physical plant and facilities and for which funding will likely be drawn primarily from various levels of government; Private Projects are those opportunities which the private sector should develop and operate on a

for-profit basis; Promotional Projects are non-profit endeavours geared towards encouraging visitation to the SCWRA and enhancing the user experience.

If all of the identified projects were to be implemented, the employment created would result in a maximum incremental addition of approximately 13 full-time positions and in the order of 80 seasonal jobs, depending upon the scale of operations at various facilities. The seasonal jobs could be phased over several years, but at a lower total employment level. Additionally, many of the projects are developmental in nature and will likely lead to greater and more permanent employment and economic benefits.

EXHIBIT 7-1: DEVELOPMENT PROJECTS SUMMARY

INFRASTRUCTURE

1. User information centre
2. Development of land based trail system
3. Improvements to existing and development of new campsites
4. Interpretation Centre
5. Construction of Picnic pull-offs on access routes
6. Excavation of archeological sites
7. Search and rescue coordination centres
8. Brush clearance in small brooks to promote development of canoe routes
9. Detailed inventory and mapping of St. Croix River
10. Completion of Spednic Lake Park
11. Improvements to North Lake Park
12. Investigate, survey and clear connections to provincial long distance trail network

Private Projects

1. Improvements to existing outfitters facilities

2. Development of accomodations in McAdam

3. Camping equipment/tackle shop

4. Shuttle service

5. Pursuit centre

6. Outward Bound school

7. Family lodge

8. Outfitter Mall Complex

Promotional Projects

1. Development of attraction oriented highway signage system

2. Production of promotional and information literature

3. Investigation of historic travel routes

4. Railway/lumbering festival

5. International river race

7.2 Project Descriptions

Infrastructure Projects

A single organization responsible for disseminating information and responding to queries regarding the SCWRA should be housed in a User Information Centre. This facility could be established either in an existing or newly constructed structure located strategically on Highway 4 near the Village of McAdam. An immediate implementation priority has been assigned to this project since the proper reception of visitors is essential to ensuring the efficient use and success of the SCWRA. It is expected that manpower requirements will be: 1 full-time manager and 2 seasonal assistants. It is suggested that staffing be initially funded by an appropriate job creation program and modified as demand warrants. The required action steps to be taken include the determination of an appropriate location for the centre; and the hiring and training of qualified staff.

In order to promote a wide range of land-base activities a trail system will be required especially in the interior of the Lake Region. This project involves the creation of a network of trails suitable for hiking in summer and snowshoeing/cross-country skiing/snowmobiling in winter. It is also recommended that appropriate shelters and huts be constructed at strategic locations along the trails. The general alignment of the trail network is indicated in the Development Plan Map. Manpower requirements will be of a seasonal nature and will likely involve several teams consisting of one foreman and three labourers each. This project could commence in the near future subsequent to a detailed survey of potential routes and marking of trails.

Improvements to existing and development of new campsites are necessary to provide suitable refuge at appropriatly spaced intervals on Grand and Spednic Lakes and the St. Croix River. New campsite locations will also be required in strategic positions at the commencement or termination of portage routes within the lake region. The location of both existing and potential campsites is indicated on the Development Plan Map. Manpower requirements are expected to be seasonal and would include one foreman and three labourers. The implementation priority attached to this project is one of short-term due to the fact that a detailed survey of potential locations is required prior to construction and improvement activities. Improvements could include the installation of tent-pads, toilets, waste receptacles, firepits, as well as the clearance of beach areas to facilitate boat landing.

An Interpretation Centre is required to provide suitable facilities for the display of the region's archeological artifacts. These artifacts could include private collections donated to the Department of Historical and Cultural Resources as well as information and material gleaned from the excavation of archeological sites within the SCWRA. The Interpretation Centre should be of high quality and could be located in the McAdam/St. Croix area where the general motoring public, travelling through the area but not necessarily engaged in active recreational activities, would be offered an opportunity to learn of the region's heritage. The implementation of this project must be geared to the progress of the investigations of the archeological sites, however, there is no reason why a suitable facility could not be found for those artifacts which have already been removed from the area.

Construction of picnic pull-offs on access routes would provide suitable facilities (toilets, picnic benches, etc.) at strategic locations on Highways 122, 4 and 630. Given the amount of traffic which currently travels on these routes this will likely be a long-term project and no initiatives are deemed to be necessary within the next three to five years, with the exception of Highway 630 between McAdam and Canterbury where a suitable picnic site should be located at approximately the mid-way point as soon as possible. Manpower requirements to construct such a facility would be seasonal and, excluding requirements for site grading, are expected to involve one foreman and two labourers. The requirement for other facilities should be monitored carefully as access and egress traffic volumes increase. Site locations should also be evaluated in the context of the Department of Transportation Rest Area Systems Plan.

The immediate necessity for the excavation of archeological sites in the SCWRA has been dealt with at length elsewhere in this report. This project would entail excavation, removal and analysis of information contained in the sites surveyed in 1982. The Archeology Branch of the Department of Historical and Cultural Resources is proposing to carry out these activities at the earliest possible date. The total cost has been estimated to be in the order of $54,000 which includes salaries for three - four assistants, and a supervisor/analysist for the 1983 season. Given the historical significance of these sites, it is highly recommended that funding be approved in order that excavation may begin in July of 1983.

With increased recreational use of the area, serious

consideration must be given to the establishment of search and rescue coordination centres manned by trained teams responsible for ground search operations. The coordination centres should be located in order to minimize ground travel distances to all points within the region. Consequently centres should be located at Fosterville, Canterbury, St. Croix and St. Stephen. Search and rescue operations in the Province of New Brunswick are the jurisdiction of the Royal Canadian Mounted Police who, in the absence of a standing policy regarding search and rescue operations, evaluate each rescue situation on an individual basis and allocate the required equipment and personnel (dive-team, helicopter, dog, etc.) according to the requirements of a particular case. Although, search and rescue operations in the SCWRA are presently the responsibility of the R.C.M.P. detachments located in Woodstock, McAdam and St. Stephen, discussions with the detachment commander in McAdam indicate that the overlap in jurisdiction will not create problems as there is a high degree of cooperation and communication between detachments. A civilian search and rescue team, trained to appropriate standards, would be welcomed within the region, but the coordination of activities would be controlled by the responsible R.C.M.P. Detachment.

As indicated in the Development Plan there are a myriad of possibilties for canoe routes within the interior of the lake region. However, travel on the smaller brooks will likely require clearance of undergrowth and dead falls. This work would involve two crews consisting of one foreman and three labourers each on a seasonal basis. Subsequent to a study to determine if flows are of sufficient duration and volume to support a worthwhile season, a detailed survey of requirements

should be conducted, and assessed in accordance with the Watercourse Alteration Regulations under the Clean Environment Act. The routes can then be priorized so that implementation can proceed on a phased basis as funds become available.

In order to promote use of the St. Croix River as well as enhance the user experience and safety conditions, it will be necessary to conduct a detailed inventory and mapping of the St. Croix River. The various parameters which should be included in the mapping system are listed below. The work should be coordinated in consultation with Canoe New Brunswick.

Basic Physical Features

- width of river
- site development potential
- apparent stream velocity
- floatability
- flow fluctuation
- seasonality
- stream bed materials
- dominant river pattern
- water surface pattern
- bank erosion

Biological Features

- algae
- water plants
- fish
- waterfowl
- land flora
- game animals
- other animals
- other birds

Special Physical Features

- ponds
- sandy beaches
- immediate bank height
- islands
- navigational obstructions

Land Use

- general land use
- historic sites
- public ownership

Esthetic Features

- scenic variety
- unique features

General Water Quality

turbidity
temperature
botton solids
floating solids
bacteriological condition
chemical pollutants
pesticides
odor

The success of the proposed Development Concept is largely dependent upon the extent of the facilities developed at Spednic Lake Provincial Park. Accordingly, an immediate priority should be attached to the implementation of the conceptual plan for the proposed Spednic Lake Provincial Park as prepared by Tourism New Brunswick. Additionally, the private sector should be encouraged to locate other components, such as the Outfitter Mall Complex and Family Lodge, somewhere on Spednic Lake.

Improvements to North Lake Park are also required. New facilities should be constructed in accordance with the recommendations contained in Chapter 5.

The SCWRA is fortunately located within easy access of several other major watershed systems in New Brunswick and Maine (example: Eel River, Penobscot River, Maqaguadavic Lakes/River). The range of experience offered to the user can be enhanced through the investigation, surveying and clearance of historical portage routes and other routes which connect with long distance trail networks in the province and the State of Maine. It is expected that this project would only be implemented in the long term.

Private Projects

Existing outfitters' facilities are considered to be inadequate especially for the support of winter activities. These facilities require renovation, landscaping and winterizing in order to attract the high-income market segment. The implementation priority for this project is considered to be immediate to short term, and the plan of action should include: an inventory of the condition of existing facilities; the determination of the extent and viability of the improvements necessary; design and priorization of the required work; and possibly, development of a cost sharing system between the private operators and the public sector. It may be advantageous to hire and train one crew to undertake all of the necessary improvements on a progressive basis. Alternatively, private operators could contract out the necessary work individually.

The Village of McAdam has been recommended as a service centre for the SCWRA. As such, the Village is well located and fairly well serviced to meet the needs of expected visitors. However there is a lack of good quality accommodations in the area and it would appear that there is an opportunity to develop a small hotel or motel with dining room/lounge facilities. Before undertaking such a venture a marketing and financial feasibility study should be undertaken.

Most visitors to the SCWRA will likely come either fully equipped or require extensive outfitting. In the latter case it is expected that private concession operators are best suited to stock and lease the necessary equipment. Nevertheless, it would appear that

there is also an opportunity for a local store owner to carry a limited line of camping equipment and fishing tackle as part of his summer inventory to meet the needs of the self-sufficient visitor who will, nevertheless, ocassionally need replacement equipment. The best location for such an initiative is probably in the Village of McAdam where there are several building supplies/hardware stores with space for a supplementary inventory of this nature.

The physical characteristics of the terrain and the water bodies in the SCWRA present abundant opportunity for linear travel, which, in the case of the St. Croix River, becomes a necessity. The bane of the wilderness traveller is the requirement to shuttle vehicles back and forth between the commencement and termination point of the journey, in addition to the fact that vehicles must often be left in isolated areas where they are subject to vandalism and/or theft. There is thus a good opportunity for the private sector to provide transportation for people, boats and equipment between St. Croix and Grand Falls on the St. Croix River and between North Lake and Spednic Lake Parks, and points in between, in the Lake System. The availability of such a service will undoubtedly increase the range of possibilities to boat users and hikers, etc. This service could be implemented immediately subject to appropriate promotion of the idea and the acquisition by an entrepreneur of a suitable van and boat trailer.

The SCWRA is ideally suited to adventure type training geared towards pushing the limits of individual human endurance. Several centres, called Pursuit Centres, which cater to this type of experience are in existance in Europe. A centre of this nature could be established

within the SCWRA (a potential location could be St. Croix) in the medium term if a suitable proponent can be located. A facility of this nature would require an Executive Director and two instructors. The required action to implement this project would be as follows: conduct market analysis and financial feasibility assessment; evaluate model sylabii; find suitable proponent; hire and train staff.

Similarly to the pursuit centre concept, an Outward Bound School could provide outdoor adventure group training geared towards promoting leadership and problem solving skills. Outward Bound Schools are located in various areas throughout Canada and the world. The ideal location for the administrative facilities for the school would be in McAdam and manpower requirements are likely to entail one director and three instructors. This would be a long term project as it will be necessary to approach Outward Bound to determine their interest in establishing in the region.

Given the increased trend in family vacations it would appear that there is a good opportunity for the establishment of a Family Lodge with facilities and activity programs suitable for family groups. The focus of the programs could be on "outdoor" education and environmental awareness similiar to the programs conducted by the Atlantic Centre for the Environment. The family lodge could be incorporated in the Outfitter Mall concept.

As discussed in the Development Concept there is a minimum of land available to support private sector initiatives for shore-based operations. However, it would appear that the public sector may be able to

acquire access to land for management purposes. This land could then be leased back to provide a land base suitable to support several outfitters or lodge operators in a relatively concentrated area. Ideally an Outfitter mall complex could be located on Spednic Lake. The required action to be taken would include investigation by the public sector of the acquisition of appropriate properties and encouragement of the private sector to develop and operate these facilities on perhaps, a lease/purchase basis.

Promotional Projects

The development of Highway 95 in the State of Maine and the TransCanada Highway through the province of New Brunswick has stimulated increased traffic volumes and inter-regional vehicle movement as well as accelerated the growth of visitation to major destination areas. The efficiency of this highway system tends to encourage the travellor to speed through to an ultimate destination and the rural tourism market areas and facilities, notably restaurants, motels and service stations, have suffered reductions in business. The key to encouraging the motoring public to leave the high speed highway system lies in creating an awareness of the "sideline" attractions before entering the system (through the provision of decision oriented material) and while on the highway (through inovative and interesting signage). Signage oriented towards encouraging the tourist traveller off of the major routes must be eye-catching, interesting and informative. Signs must also be of sufficient size to allow rapid interpretation by a speeding motorist. Additionally, signs must appear more than once and be located so as to provide sufficient time for the motorist to make a decision before the turn-off point.

A coordinated effort evaluating arresting graphic design and proper location of signage with respect to exits is required. There may also be a need for blank signage space to promote special occasions (festivals, etc.). A standard graphic display, easily affixed to the existing signage system (subject to the approval of the District Highway Engineer) should be developed. These signs would be useful in directing both resident, local/regional and tourist traffic to special events. It is understood that the development of appropriate signage is under active consideration by McAdam Tourism Development Inc. and the McAdam ILAP Committee.

Successfull promotion of the SCWRA will require the production of informative literature geared towards highlighting the major access routes, trail systems, campsite locations, services available within the area, specific attractions and points of interest, etc. Additionally, a calendar of significant activities and festivals should be published on an annual basis. It is recommended that to the extent possible, the layout and design of promotional and information literature such as outfitters pamphlets, marketing literature, information brochures and maps, etc. be contracted locally.

Many canoeists are interested in retracing historical travel routes. The SCWRA was used extensively by natives and early settlers in the past. Many of their primary trading routes have been traced and recorded by explorers in various documents (e.g. W.F. Ganong's Journals). These records should be evaluated by an historian and the routes described and surveyed for the potential use of those wishing to renact history. This project could be undertaken during the summer season by students supervised by an experienced historian.

The history of the McAdam area is steeped in the lore of railway development and lumbering camps. It would appear that the historical background of the area would provide ample scope to develop an annual festival celebrating the importance of lumbering and railway activity in the past. This project would require the establishment of a volunteer committee to undertake the necessary investigation of historical sources of information in order to develop appropriate themes and outline a program of events.

From 1974 to 1979 a canoe/kayak race was held on the lower reaches of the St. Croix River. However, the race was terminated because of the difficult stretch of rapids below the Milltown dam and a lack of sufficient rescue capabilities. It is believed that if an international river race were to be held on the upper reaches of the St. Croix (example: from Vanceboro down to an appropriate finish point) it would prove to be a popular event with canoeists drawn from a large area. The upper St. Croix is an easier run but there are difficult access problems for rescue purposes. However, with proper coordination it is believed that these problems can be overcome. A volunteer committee, with representation from local canoe clubs, would be the ideal nucleus for generating the initiative necessary to undertake this project.

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APPENDIX I

LAKE INVENTORY

The following uses have been assigned to the lakes in the SCWRA according to the best match between physical features and user activity:

A. Bank fishing
B. Boat fishing
C. Canoe camping
D. Driving for pleasure
E. Hiking
F. Hunting, Trapping
G. Nature study
H. Picnicing
I. Small craft boating (under]0 h.p.)
J. Social canoeing
K. Swimming
L. Trail camping
M. Vehicle camping
N. Snowshoeing
O. Wilderness canoeing
P. Cross-country skiing
Q. Snowmobiling

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Skiff

Surface Area (hectares): 614

Longest Length (km): 2.7

Maximum Depth (m): 12

Shoreline Conditions: rocky, gravel

Water Quality: good

Access: paved road along the shore, several private boat ramps

Potential Use: A, B, C, H, I, J, K, L, O, Q, R

C.L.I. Capability Ratings:

Ungulates: $3^6\ 4^4$

Waterfowl: $6^6\ 5^3\ 4^1$

Hazards: none

Ownership: 20% crown, 80% private; approximately 120 cottages

REMARKS: most heavily developed lake in area

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Spednic

Surface Area (hectares): 6943

Longest Length (km): 27

Maximum Depth (m): 12

Shoreline Conditions:

Water Quality: good

Access: paved road to St. Croix and Forest City; woods road to McAllister Cove; water access from Palfrey Lake. Concrete and gravel boat ramps at St. Croix and north end respectively

Potential Use: A, B, C, E, F, J, K, P

C.L.I. Capability Ratings:

Ungulates: 3^{8} 4^{2}

Waterfowl: 6

Hazards: shallow, rocky bottom

Ownership: mainly Georgia-Pacific, some private

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Grand

Surface Area (hectares): 6248

Longest Length (km): 20

Maximum Depth (m): 12

Shoreline Conditions: rocky

Water Quality: good

Access: paved road to Fosterville and Forest City; public gravel boat ramp at south end; water access from North Lake

Potential Use: B, C, E, F, J, P

C.L.I. Capability Ratings:

Ungulates: 2^6 4^4

Waterfowl: 6^6 5^4

Hazards: rocky bottom, shallow, windy

Ownership: mainly Georgia-Pacific, some private

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: North

Surface Area (hectares): 388

Longest Length (km): 4

Maximum Depth (m): 12

Shoreline Conditions: rocky, gravel

Water Quality: good

Access: paved road to Provincial Park, gravel boat ramp

Potential Use: A, B, C, E, F, G, H, I, J, K, L, O, P, R

C.L.I. Capability Ratings:

Ungulates: 4^5 3^5

Waterfowl: 6^6 5^4

Hazards: none

Ownership: 10% crown, some Georgia-Pacific, rest private

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Fifth

Surface Area (hectares): 352

Longest Length (km): 4

Maximum Depth (m): 6

Shoreline Conditions: rocky

Water Quality: good

Access: gravel road passable by automobile; no boat ramp

Potential Use: A, B, F, M

C.L.I. Capability Ratings:

Ungulates: 4

Waterfowl: 6

Hazards: none

Ownership: 95% Georgia-Pacific, 5% crown

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Palfrey

Surface Area (hectares): 788

Longest Length (km): 9.5

Maximum Depth (m): 15

Shoreline Conditions: rocky, gravel

Water Quality: good

Access: several private gravel roads; water access from Spednik Lake

Potential Use: A,B,C,F,H,I,J,K,L,O,P,Q,R

C.L.I. Capability Ratings:

Ungulates: 3^5 4^5

Waterfowl: 6

Hazards: none

Ownership: mainly Georgia-Pacific, some private, some crown

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: La Coote

Surface Area (hectares): 100

Longest Length (km): 2.4

Maximum Depth (m): 6

Shoreline Conditions:

Water Quality: good

Access: nearest woods road approximately 2 km from shore

Potential Use: A,F

C.L.I. Capability Ratings:

Ungulates: 2

Waterfowl: 6^{9} 5^{1}

Hazards: none

Ownership: 100% Georgia-Pacific; approximately 3 camps on leased lots

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Grassy

Surface Area (hectares): 177

Longest Length (km): 3

Maximum Depth (m): 3

Shoreline Conditions: rocky

Water Quality: good

Access: gravel road passable by 4 wheel drive approaches to within 400 m of shore

Potential Use: A,C,H,F,M

C.L.I. Capability Ratings:

Ungulates: 3

Waterfowl: 6^6 5^3 4^1

Hazards: shallow, rocky

Ownership: 100% crown

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: McAdam (Wauklahegan)

Surface Area (hectares): 343

Longest Length (km): 6

Maximum Depth (m): 15

Shoreline Conditions:

Water Quality: poor

Access: paved road from AcAdam Village; street gravel
boat ramp at southeast end

Potential Use: A,B,C,H,J,K,O

C.L.I. Capability Ratings:
Ungulates: 4^8 5^2

Waterfowl: 6

Hazards: none

Ownership: mainly Georgia-Pacific; approximately
20 cottages

REMARKS: lake is polluted from Village of McAdam sewerage

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Modsley

Surface Area (hectares): 402

Longest Length (km): 5.6

Maximum Depth (m): 3

Shoreline Conditions:

Water Quality: good

Access: only access by foot, approximately 2km from nearest woods road. Water access from McAdam Lake.

Potential Use: A,C,E,F,P

C.L.I. Capability Ratings:

Ungulates: 4^5 5^5

Waterfowl: 5^8 4^2

Hazards: none

Ownership: 100% Georgia-Pacific

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Sixth

Surface Area (hectares): 140

Longest Length (km): 1

Maximum Depth (m): 6

Shoreline Conditions: rocky

Water Quality: good

Access: only access by foot, woods road at north end

Potential Use: A,B,F

C.L.I. Capability Ratings:

Ungulates: 4

Waterfowl: 6

Hazards: none

Ownership: 100% Georgia-Pacific

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Third Eel

Surface Area (hectares): 75

Longest Length (km): 1.6

Maximum Depth (m): 5

Shoreline Conditions:

Water Quality: excellent

Access: woods road; no public access

Potential Use: A,F

C.L.I. Capability Ratings:
Ungulates:
Waterfowl: 6^{9} 5^{1}

Hazards: Shallow

Ownership: 100% Georgia-Pacific

REMARKS: little used and remote lake

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Second Eel

Surface Area (hectares): 605

Longest Length (km): 8

Maximum Depth (m): 3

Shoreline Conditions: rocky, gravel

Water Quality: probable high lignum content

Access: gravel road passable by 4 wheel drive; no boat ramp

Potential Use: A,B,C,F

C.L.I. Capability Ratings:

Ungulates: 4^{9} 2^{1}

Waterfowl: 6^{9} 5^{1}

Hazards: shallow, rocky ledges, windy

Ownership: 50% crown; 50% Georgia-Pacific

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Bolton

Surface Area (hectares): 312

Longest Length (km): 3

Maximum Depth (m): 12

Shoreline Conditions: sandy

Water Quality: good

Access: gravel road passable by automobile; no boat launching area

Potential Use: A,B,F,P

C.L.I. Capability Ratings:

Ungulates: 2^5 3^5

Waterfowl: 6

Hazards: none

Ownership: 30% crown, 70% Georgia-Pacific, 3 cottages

REMARKS:

ST. CROIX WATERWAY RECREATION AREA
LAKE CHARACTERISTICS DATA SHEET

Lake Name: Musquash

Surface Area (hectares): 120

Longest Length (km): 2.5

Maximum Depth (m): 6

Shoreline Conditions: rocky

Water Quality: good

Access: gravel road passable by 4 wheel drive; no boat ramp

Potential Use: A,B,F,P

C.L.I. Capability Ratings:

Ungulates: 2

Waterfowl: 6

Hazards: none

Ownership: 100% Georgia-Pacific

REMARKS:

APPENDIX II

ST. CROIX RAPIDS INVENTORY

APPENDIX II

DESCRIPTION OF WHITE WATER STRETCHES ON THE ST. CROIX RIVER

LOCATION	CLASS	FEATURES	REMARKS
Wingdam Rips	---	shallow	can be run all year
Elbow Rips	---	sharp ridges	best run in June
Mile Rips	---	pebble bottom	best run in May
Tunnel Rips	---	very scenic area	best run in June
Joe Georges Rips	---	shallow	deep holes
Halls Rips	I - II		
Little Falls	II - III	navigation is tricky	portage route on U.S. bank
Pork Rips	---	shallow	
Duck Point Rips	---		very short run
Cedar Island Rips	---	pebble bottom	
Tyler Rips	I - II		enjoyable, long run
Albee Rips	---	shallow	
Rocky Rips	II	navigation tricky	several channels available
Split Rock Rips	I - II	navigation tricky	
Meetinghouse Rips	I	shallow navigation difficult	enjoyable, long run
Haycock Rips	II - III	navigation tricky	
Canoose Rips	II - III	manouvering required	Indian Burial Ground at mouth of Canoose Stream

Dog Falls	I		
Dog Island Rips	---	Shallow, rocky bottom	
Kendricks Rips	---		chute at low water
Bailey Rips	I		can be run all summer
Upper Mills Rapids	II - III		
Salmon Falls	III	tricky manouvering	heavy water
Power House Rips	I		degree of difficulty affected by tide
Point Rips	IV - V	haystacks, eddies	current flows into retaining wall; affected by tide

APPENDIX III

INTERNATIONAL RIVER GRADING SYSTEM

APPENDIX III
INTERNATIONAL RIVER GRADING SYSTEM

Grade I. Very Easy

Waves small, regular. Passages clear. Sandbanks, artificial difficulties like bridge piers. Riffles. Obstacles are easy to avoid. Beginner's water.

Grade II. Easy

Waves up to one to two feet. Rapids of medium difficulty, with passages clear and wide. Low ledges which are easy to negotiate. The best passage is generally easy to negotiate. Requires basic white water skill.

Grade III. Medium

Waves, numerous, high (up to three feet), irregular. Rocks, eddies. Rapids with passages that are clear though narrow, requiring expertise in manoeuver. Inspection usually needed. The limit for open canoes. Requires sound white water skills.

Grade IV. Difficult

Long rapids. Waves powerful, irregular. Dangerous rocks. Boiling eddies. Passages difficult to reconnoitre. Inspection mandatory first time. Powerful and precise manoeuvering required. Requires advanced to expert level of skills.

Grade V. Very Difficult

Extremely difficult, long and very violent rapids, following each other almost without interruption. River bed extremely obstructed. Big drops, violent current, very steep gradient. Reconnoitering essential but difficult. Requires absolute expertise.

Grade VI. Extraordinarily Difficult

The difficulties of Grade V carried to extremes of navigability. Nearly impossible and very dangerous. For teams of experts only, at favourable water levels and after close study with all precautions. Even experts avoid this kind of water if possible.

NOTE: In this condensed form, the international rating system appears simple. The grade assigned to a rapids depends largely on its gradient, volume of water, and the shape of the river bed and obstructions in it. But in use the rating system is far from simple, for three reasons: difficulty changes with changes in water flow; there is inevitably a subjective element in grading; and dangers as well as difficulty must be considered.

APPENDIX IV

PADDLER CLASSIFICATION

APPENDIX IV
PADDLER CLASSIFICATION

Class 1. Beginner

Knows all basic strokes and can handle the boat competently in smooth water.

Class II. A Novice

Can use effectively all basic white water strokes in the kayak, or in both bow and stern of the canoe. Can read water and negotiate easy rapids with assurance.

Class III. An Intermediate

Can negotiate rapids requiring complex sequential maneuvering. Can use eddy turns and basic bow-upstream techniques. Is skillful in both bow and stern of double canoe, and single in canoe or kayak, in intermediate rapids.

Class IV. An Expert

Has proven ability to run difficult rapids in both bow and stern of double canoe, and single in canoe or kayak. Has skill in heavy water and complex rapids.

Class V. A Senior Leader

In addition to expert canoeing skills, has wide experience and good judgement for leading trips on any river.

Source: Appalachian Mountain Club

APPENDIX V

CANADA LAND INVENTORY

LAND CAPABILITY FOR WILDLIFE

APPENDIX V

CANADA LAND INVENTORY

LAND CAPABILITY FOR WILDLIFE

GENERAL

The Canadian Wildlife Service with the support of the Agricultural and Rural Development Act, has prepared capability classifications for lands within Canada according to their ability to support production of waterfowl and ungulates. The ability of the land to meet the needs for survival, growth and reproduction is determined by the individual requirements of the species or group under consideration, the physical characteristics of the land, and those factors that influence the plant and animal communities.

CLASSIFICATION SYSTEM

The classification system is based on two important considerations:

capability ratings are established on the basis of the optimal vegetational stage that can be maintained when good wildlife management is practiced; and,

assigned capability ratings do not reflect present land use (except in extreme cases such as heavily populated urban areas), ownership, lack of access, distance from cities, or amount of hunting pressure.

CAPABILITY RATINGS

A brief description of the capability ratings follows.

Class I lands have no significant limitations and the capability of these lands is very high.

Class II lands have very slight limitations primarily due to climate, fertility, or permeability of the soils.

Class III lands have slight limitations and the capability of these lands is moderately high. The slight limitations are due to climate or to characteristics of the land that affect the quality and quantity of habitat.

Class IV lands have moderate limitations similar to those in class III, but the degree is greater.

Class V lands have moderately severe limitations.

Class VI lands have severe limitations which may include aridity, salinity, very flat topography, etc.

Class VII lands have such severe limitations that the capability of these lands is negligible or non-existent.

Detailed information regarding the classification system is available in the following Canada Land Inventory map sheets:

Land Capability for Wildlife - Waterfowl, Catalogue No. Fo64/4w - 21G

Land Capability for Wildlife - Ungulates, Catalogue No. F064/4u - 21G.

APPENDIX VI

ACCOMMODATIONS

APPENDIX VI
ACCOMMODATIONS

Hotels/Motels

St. Stephen

Auberge Elm Lodge Inn	9 units; licensed diningroom, lounge
Clems Tourist Home	2 units; seasonal
Wandlyn Inn	49 units; licensed diningroom, lounge
Better Duck In Motor Court	18 units; seasonal
White Swan Motel	10 units
Fundy Line Motel	41 units; coffee shop
Hi-Way Motel	10 units
Scoodic Motel	14 units
Busy Bee Motel & Cottages	20 units
Haun's Holiday Farm	1 unit; seasonal

McAdam

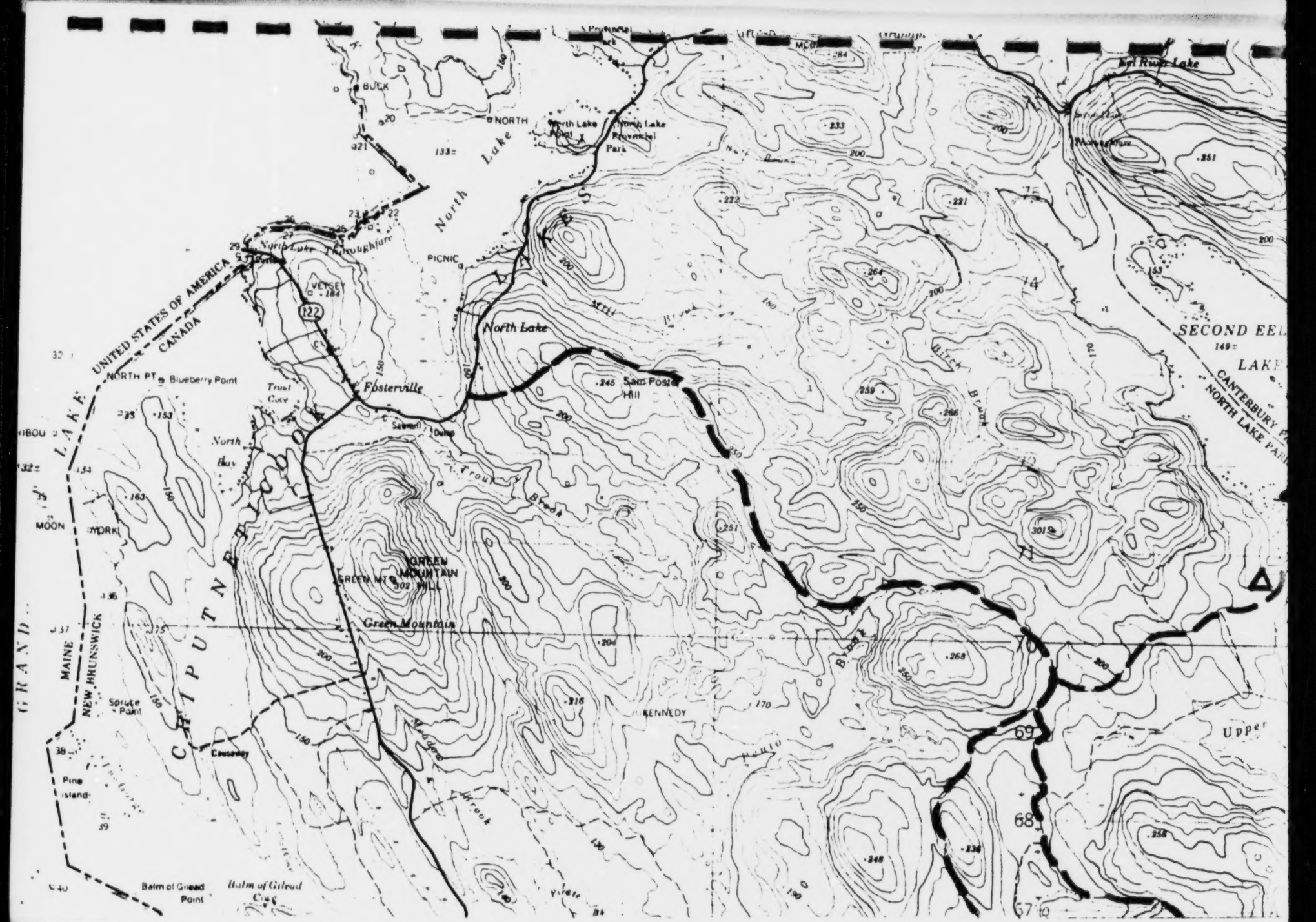
Spednic Lake Motel	5 units; restaurant

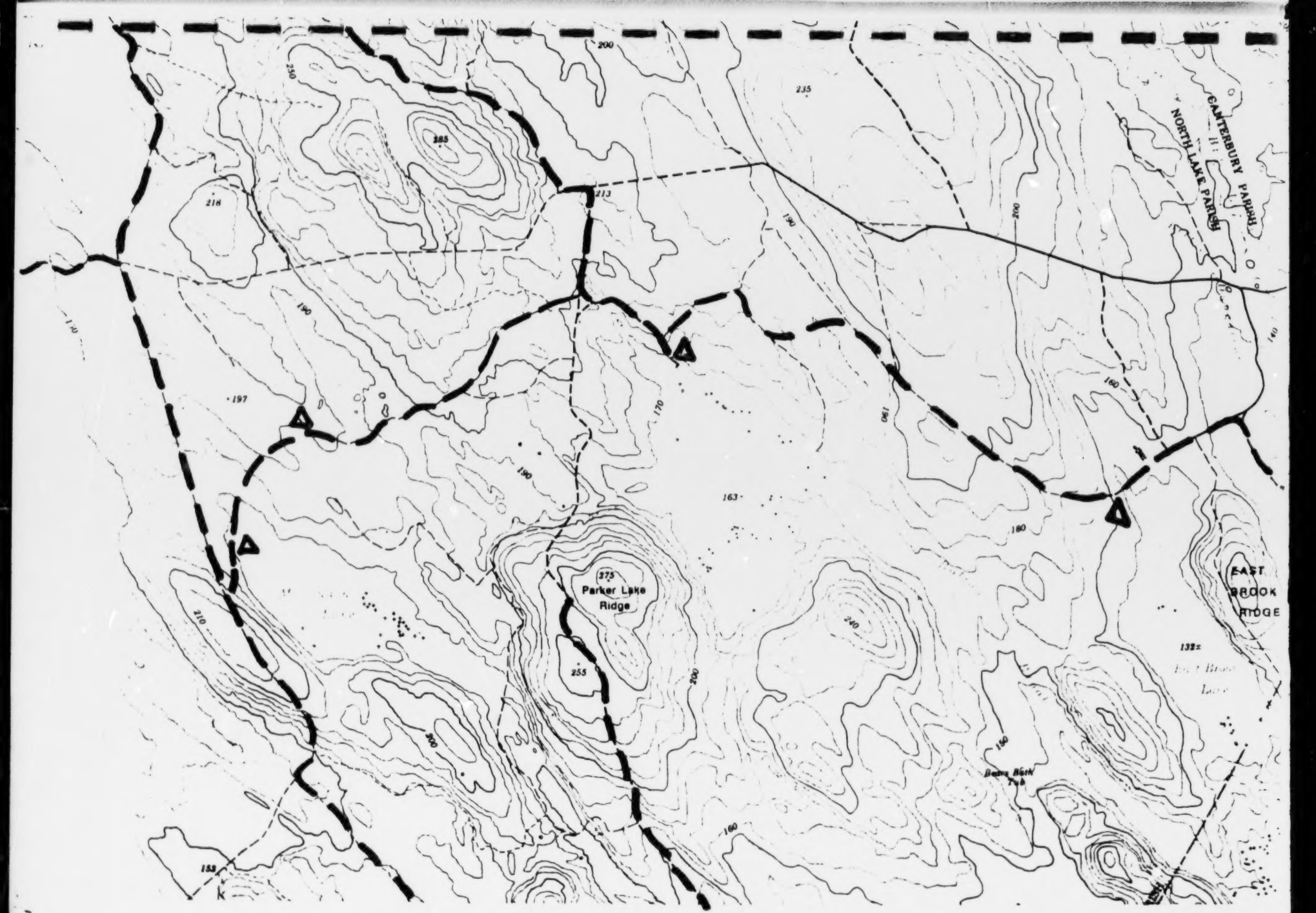
Outfitters/Lodges

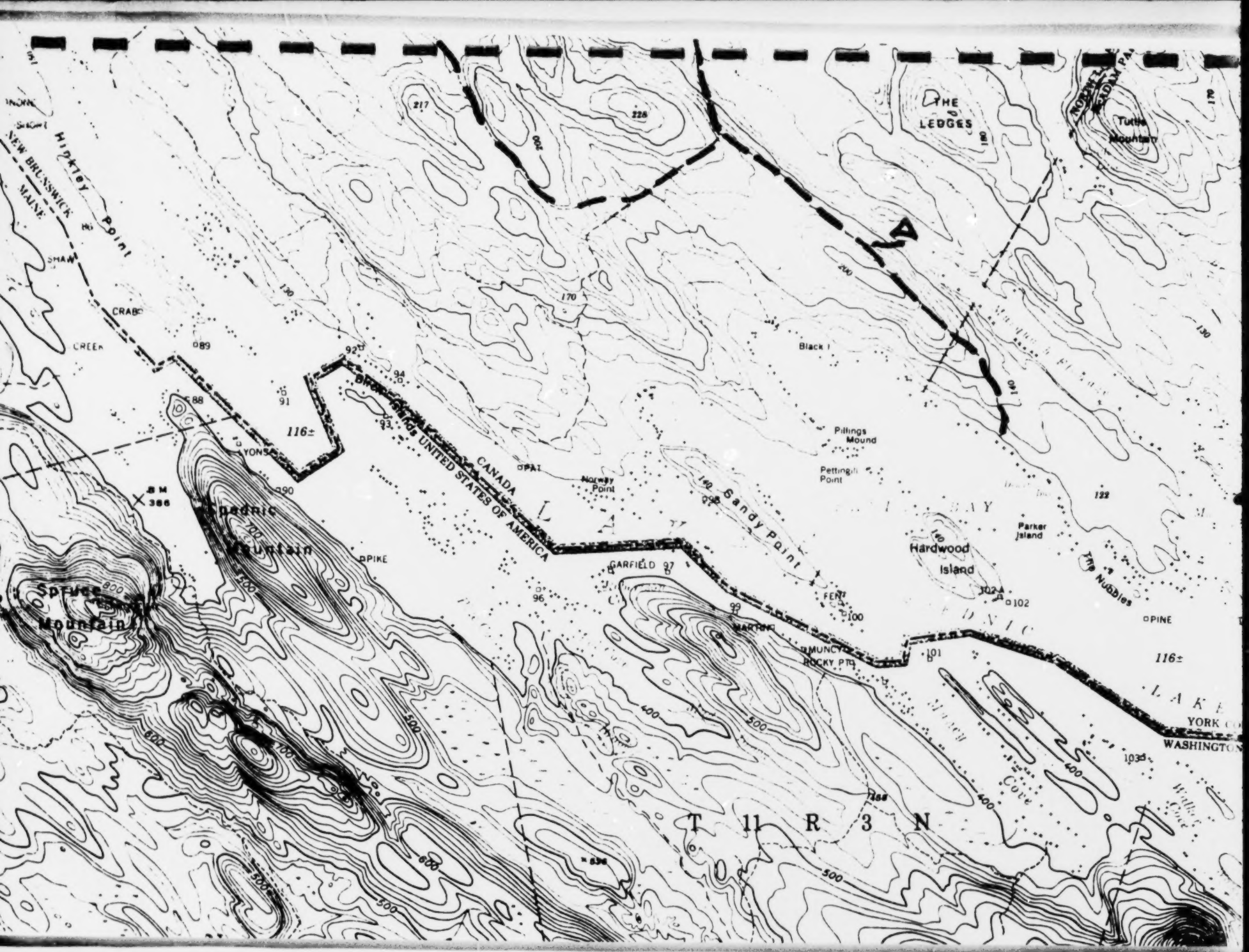
Canoose Camps	8 guests, showers, toilets, guides, boat rental, hunting dogs, propane
Loon Bay Lodge	16 guests, dining room, guides, boats and motors, kennels, electricity
North Lake Lodge	4 guests (male only), guides, boats electricity
Palfrey Lake Lodge	10 guests, guides, boats and motors, propane
Skiff Lake Inn	32 guests, all facilities, guides, boats and motors, licensed lounge and restaurant, electricity
Spednic Lake Motel	14 guests, restaurant, guides, boats and motors, electricity

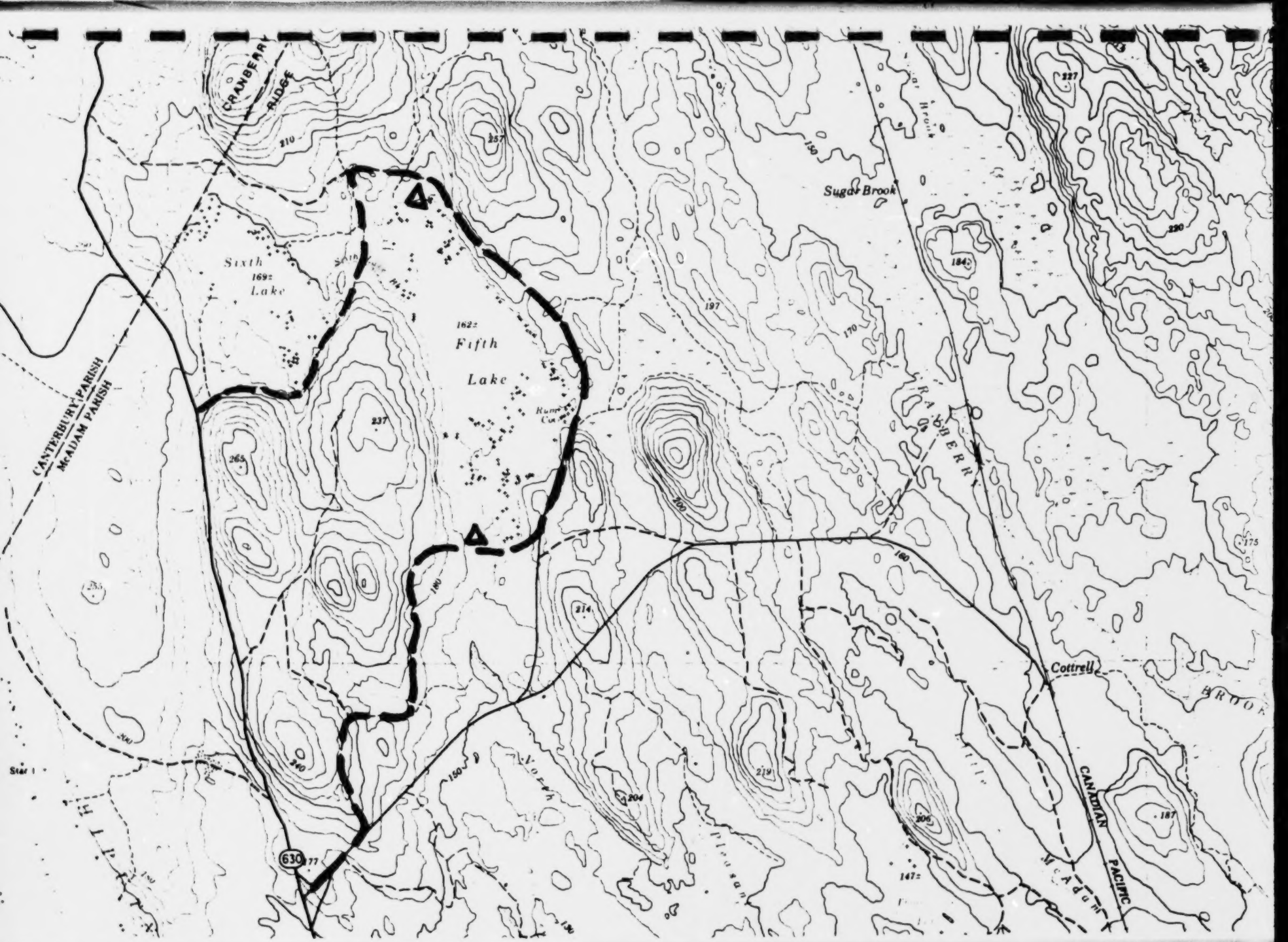
APPENDIX VII

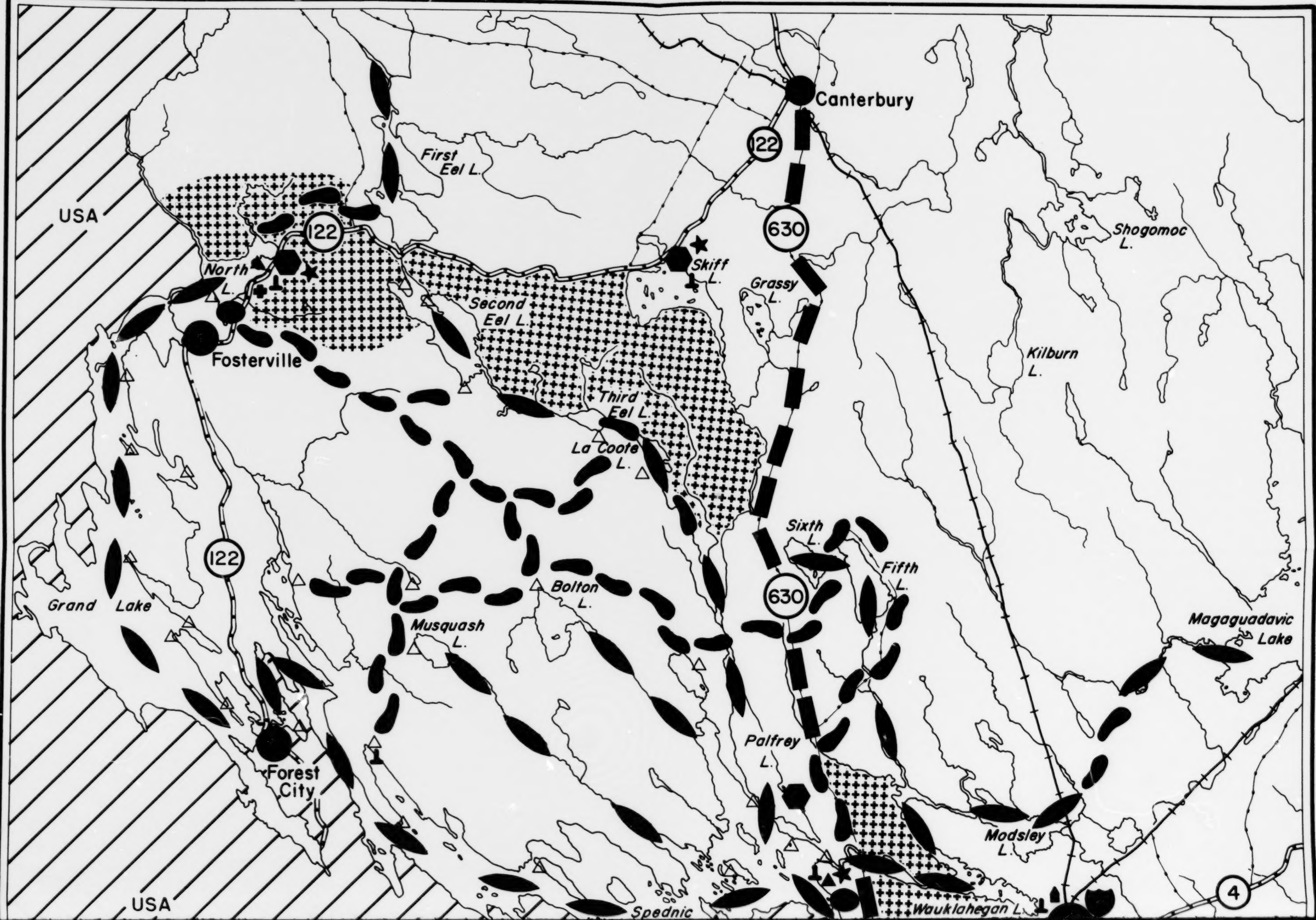
PROPOSED PRELIMINARY TRAIL SYSTEM


UNITED STATES OF AMERICA
CANADA
MAINE
NEW BRUNSWICK
GRAND LAKE
CHIPUTNETICOOK
North Lake
North Lake Provincial Park
North Lake Thoroughfare
Fosterville
Green Mountain
GREEN MOUNTAIN
502 HILL
Sam Foster Hill
Trout Brook
Trout Cove
North Bay
Blueberry Point
NORTH PT
PICNIC
Sawmill
Dump
Spruce Point
Causeway
Pine Island
Balm of Gilead Point
Balm of Gilead Cove
KENNEDY
Upper
Red River Lake
SECOND EEL
LAKE
CANTERBURY
NORTH LAKE
122
68
69


CANTERBURY PARISH
NORTH LAKE PARISH
375
Parker Lake
Ridge
255
EAST
BROOK
RIDGE
132±


NEW BRUNSWICK
MAINE
Hinkley Point
CRABB
CREEK
116±
LYONS
BM 386
Spednic Mountain
Spruce Mountain
PIKE
BOUNDARY MONUMENTS
UNITED STATES OF AMERICA
CANADA
Norway Point
Sandy Point
GARFIELD
FENT
MARTIN
MUNCY
ROCKY PTS
THE LEDGES
Black I
Pillings Mound
Pettingill Point
Parker Island
Hardwood Island
The Nubbles
PINE
NORTH SADDLEBACK MTN
Tuttle Mountain
YORK
WASHINGTON
Cove
T 11 R 3 N


CRANBERRY RIDGE
Sixth Lake
169
Fifth Lake
162
CANTERBURY PARISH
McADAM PARISH
Sugar Brook
RAILROAD
Cottrell
CANADIAN PACIFIC
630


USA
First Eel L.
Canterbury
122
630
Shogomoc L.
North L.
Skiff L.
Grassy L.
Second Eel L.
Fosterville
Kilburn L.
Third Eel L.
La Coote L.
Sixth L.
Fifth L.
Grand Lake
Bolton L.
Musquash L.
Magaguadavic Lake
Palfrey L.
Forest City
Modsley L.
Spednic
Wauklahegan L.
4

ST. CROIX WATERWAY RECREATION AREA

MAP I

PROPOSED DEVELOPMENT PLAN

Development Nodes

Destination Areas

Information Centre

Service Centre

Linear Water Route

Trail System

Static Land Activity

Campsites: existing

potential

USA

Spednic Lake

Modsley L.

Wauklahegan L.

McAdam

4

Vanceboro Me.

St. Croix

630

Saint Croix

Canoose Flowage

3

755

745

River

750

730

Information Centre

Service Centre

Linear Water Route

Trail System

Static Land Activity

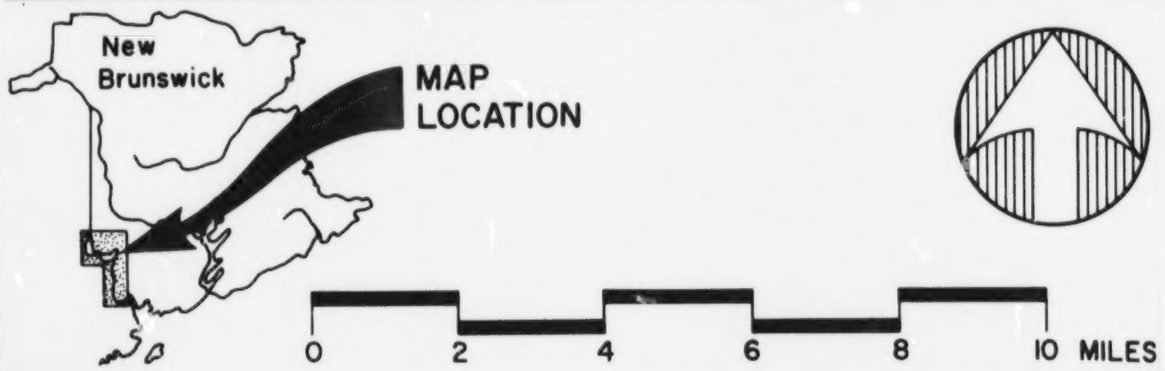
Campsites: existing
potential

Outfitter Lodge

Boat Launch

Route Upgrading

Facilities Upgrading



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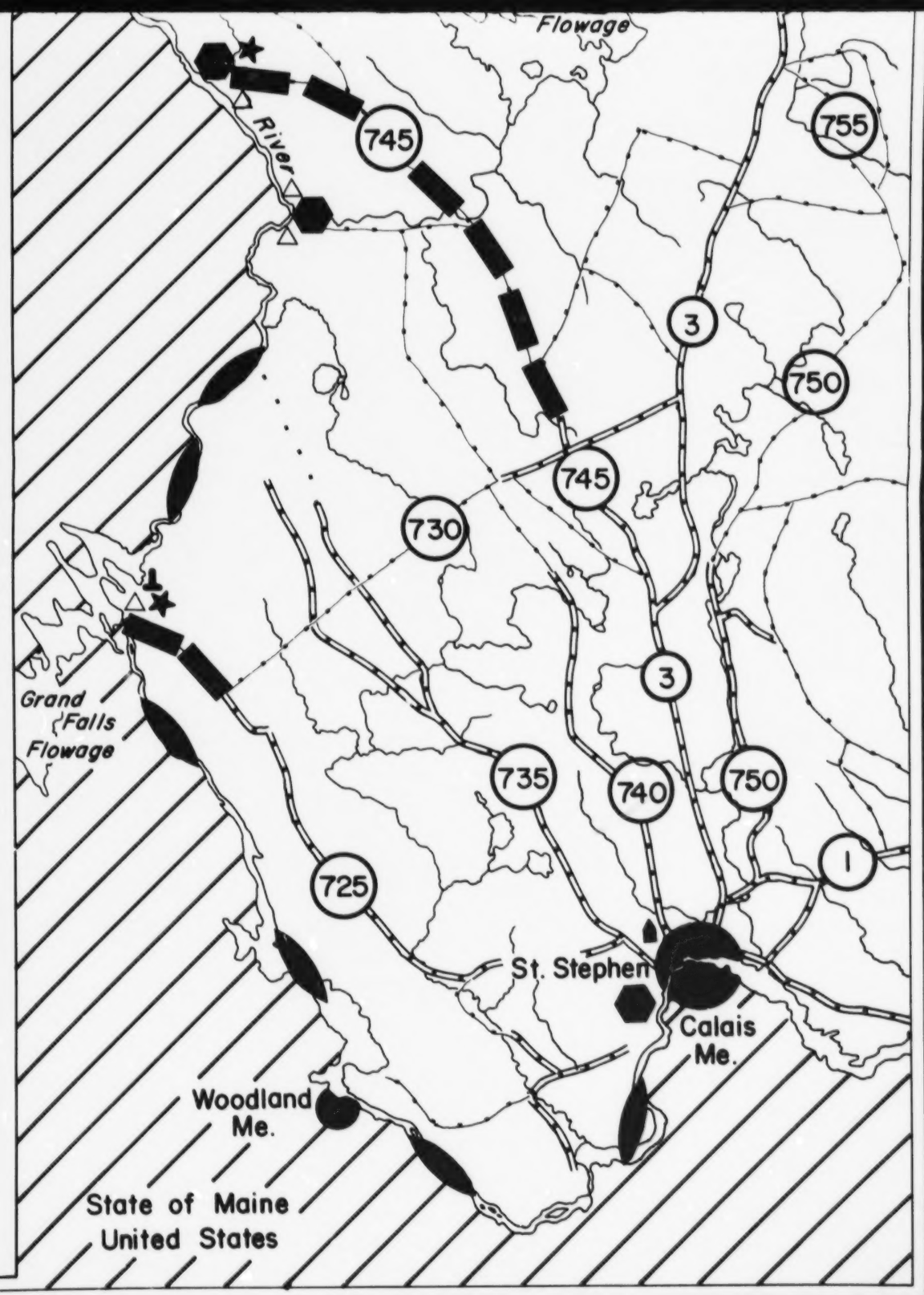
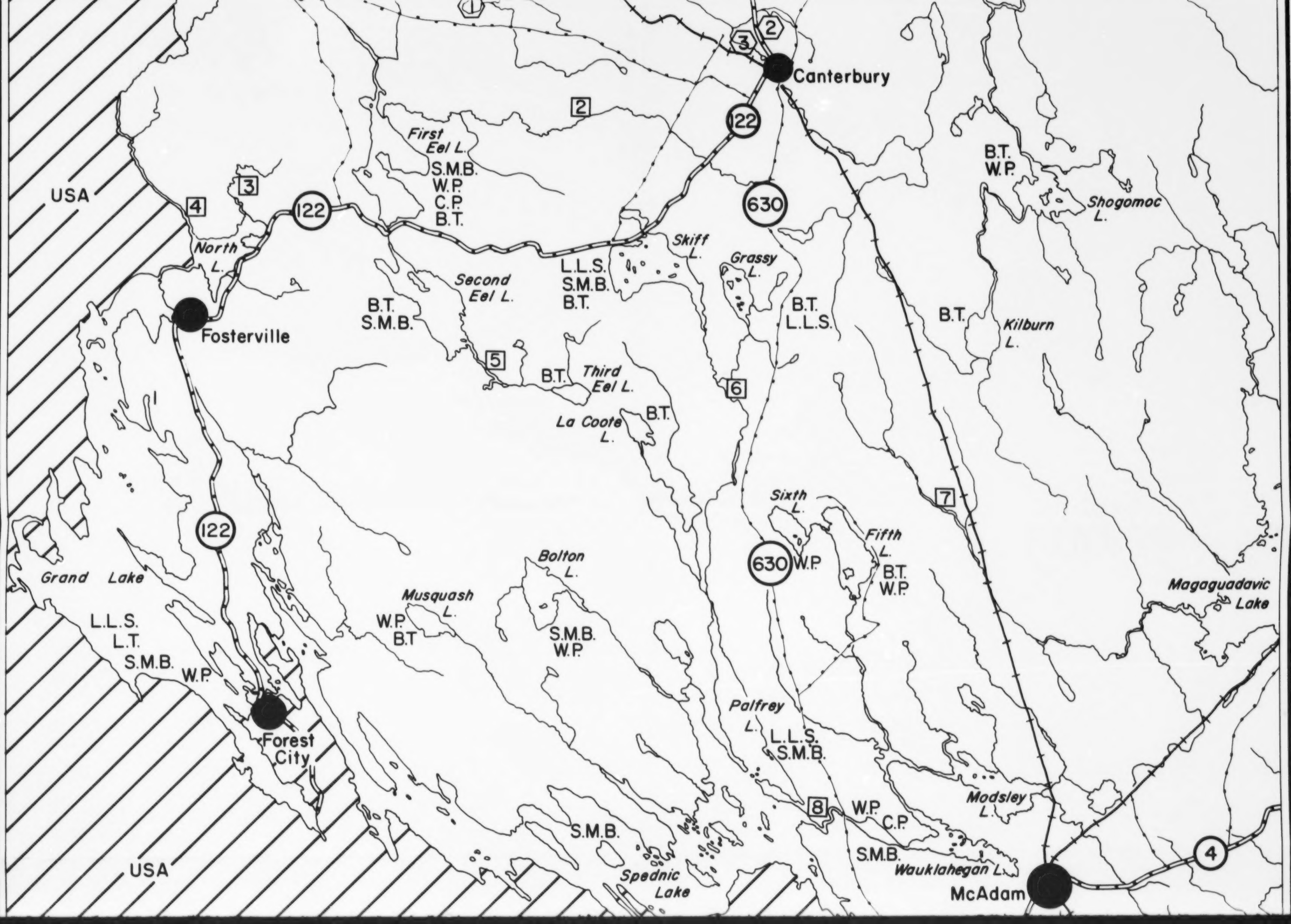



USA
Canterbury
Fosterville
Forest City
McAdam
Grand Lake
Skiff L.
Grassy L.
Second Eel L.
Third Eel L.
First Eel L.
La Coote L.
North L.
Shogomoc L.
Kilburn L.
Magaguadavic Lake
Bolton L.
Musquash L.
Sixth L.
Fifth L.
Palfrey L.
Modsley L.
Wauklahegan L.
Spednic Lake
S.M.B.
W.P.
C.P.
B.T.
L.L.S.
L.T.
122
630
1
2
3
4
5
6
7
8

ST. CROIX WATERWAY RECREATION AREA

MAP II

DUCKS UNLIMITED CANADA

⬡ EXISTING PROJECTS

1 Pocowagamis Lake – 200 acres
2 South Four Mile Brook – 29 acres
3 Pine Swamp Brook – 31 acres
4 Three Brooks – 1400 acres
5 Cranberry Lake – 182 acres

☐ POTENTIAL PROJECTS (estimated acreages)

1 Fosterville Marsh – 90 acres (scheduled for 1983 construction)
2 Dead Creek – 150 acres
3 North Lake Inlet – 250 acres
4 Monument Brook – 350 acres
5 2nd Eel Deadwater – 350 acres
6 Palfrey Stream – 75 acres
7 Sugar Brook – 100 acres
8 Diggity Stream – 280 acres

PRIMARY FISH SPECIES

Small Mouth Bass – S.M.B.
Land Locked Salmon – L.L.S.
White Perch – W.P.
Chain Pickerel – C.P.

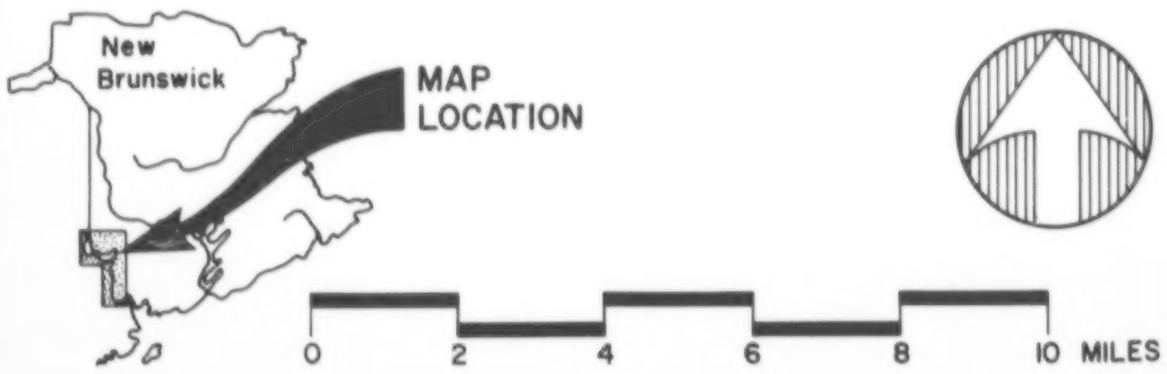
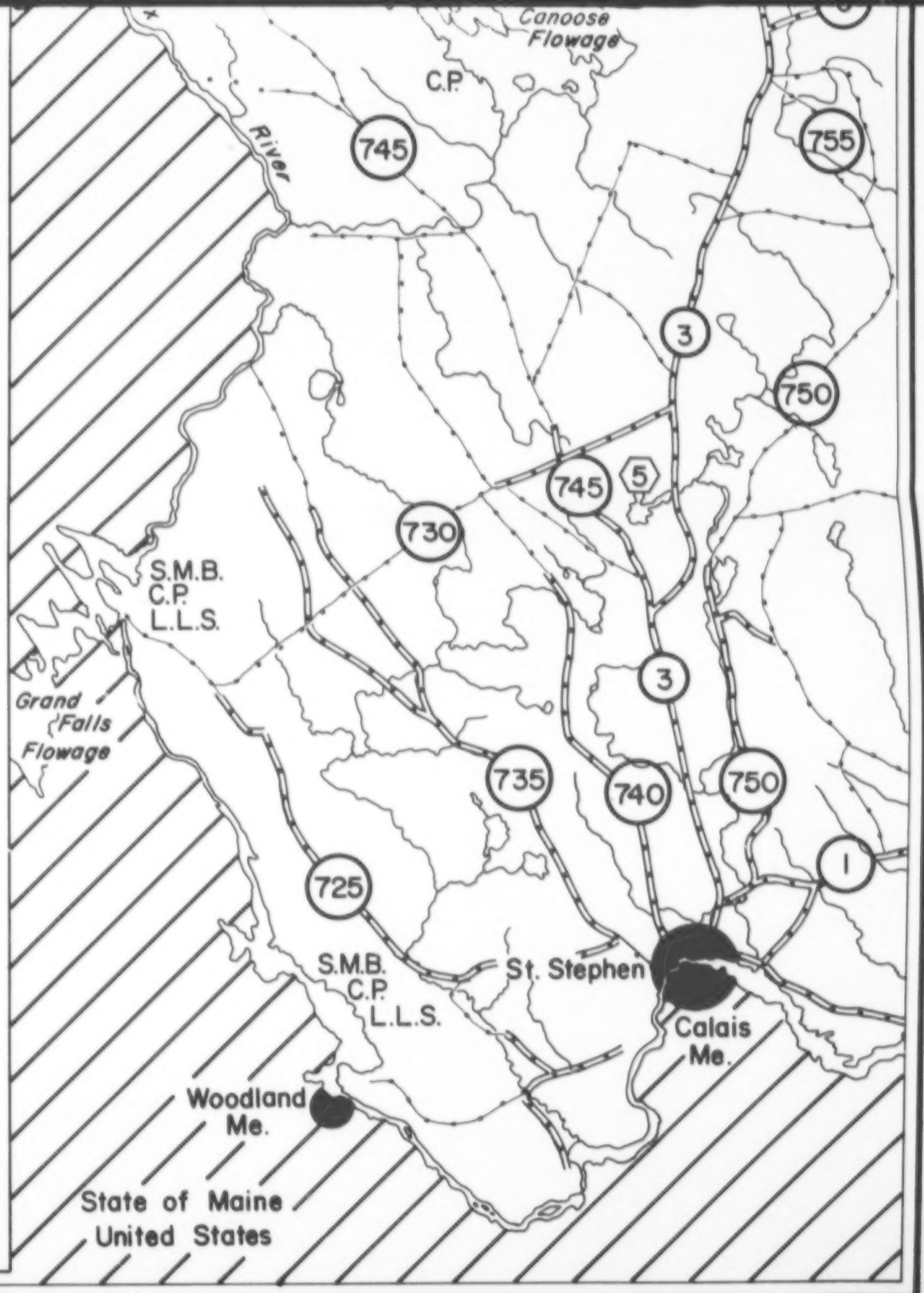
USA
S.M.B.
Spednic Lake
S.M.B.
Waukiahegan L.
McAdam
4
Vanceboro Me.
St. Croix
630
Saint Croix River
L.L.S.
S.M.B.
C.P.
Canoose Flowage
C.P.
745
755
3
750
730
745
5
S.M.B.
C.P.

☐ POTENTIAL PROJECTS (estimated acreages)

1 Fosterville Marsh – 90 acres (scheduled for 1983 construction)
2 Dead Creek – 150 acres
3 North Lake Inlet – 250 acres
4 Monument Brook – 350 acres
5 2nd Eel Deadwater – 350 acres
6 Palfrey Stream – 75 acres
7 Sugar Brook – 100 acres
8 Diggity Stream – 280 acres

PRIMARY FISH SPECIES

Small Mouth Bass - S.M.B.
Land Locked Salmon - L.L.S.
Lake Trout - L.T.
White Perch - W.P.
Chain Pickerel - C.P.
Brook Trout - B.T.
Smelt - S.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